

**THEODORE ROOSEVELT NATIONAL
WILDLIFE REFUGE COMPLEX**

Hollandale, Mississippi

ANNUAL NARRATIVE REPORT

Calendar Year 2002

**U.S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
National Wildlife Refuge System**

REVIEW AND APPROVALS
YAZOO NATIONAL WILDLIFE REFUGE COMPLEX
Hollandale, Mississippi

ANNUAL NARRATIVE REPORT
Calendar Year 2002

Refuge Manager

Date

Refuge Supervisor

Date

Regional Office Approval

Date

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INTRODUCTION

Yazoo National Wildlife Refuge (NWR) is located in the heart of Mississippi's Delta Region 25 miles south of Greenville, Mississippi and five air miles east of the Mississippi River in Washington County. Land acquisition began in 1936 under authority of the Migratory Bird Treaty Act and Migratory Bird Hunting Stamp Act with the initial purchase of 2,166 acres. In March 1937, an additional 639 acres were purchased with plans to acquire 20,000 acres. Problems with a local drainage district resulted in a delay of official activation and assignment of a manager until late in 1956. The Service was given permission to purchase additional land in 1960 under the provision of Section 5928 of the Mississippi Code of 1942, re-compiled by Governor Ross R. Barnett. Varied acreage was purchased from land owners and hunting clubs until a total of 12,471 acres was reached on July 30, 1969. In 1992, the Service purchased the 470-acre Cox property, bringing total refuge acreage to 12,941.

In the early 1900's, natural habitat, supplemented by agricultural crops, provided excellent waterfowl hunting in and around the refuge area. People came from as far away as New England to participate in the sport. Records indicate that the area abounded with ducks, geese and swans throughout the wintering season.

Initially, Yazoo NWR was established as a link in the chain of refuges throughout the Mississippi flyway, with special emphasis on wintering habitat for ducks and geese. Through ensuing years as land acquisition progressed, emphasis was added for reproduction of mourning doves, wood ducks, giant Canada geese and colonial birds, along with endangered and resident species. Turkey management began in 1970 with the introduction of a nucleus flock.

The 12,941 acres of undulating Delta soils at Yazoo NWR range from heavy gumbo (clay) to silt loam and limited sand ridges (hot spots). Most farm acreage is classed as prime agricultural land. Elevations range from 90 feet in the main drainage to 113 feet in agricultural areas.

Area temperatures range from 92°F normal maximum to 40°F normal minimum. Extremes for the 10 year period 1961-1970 were a high of 106°F and a low -3°F. Average annual rainfall measures 52.55 inches.

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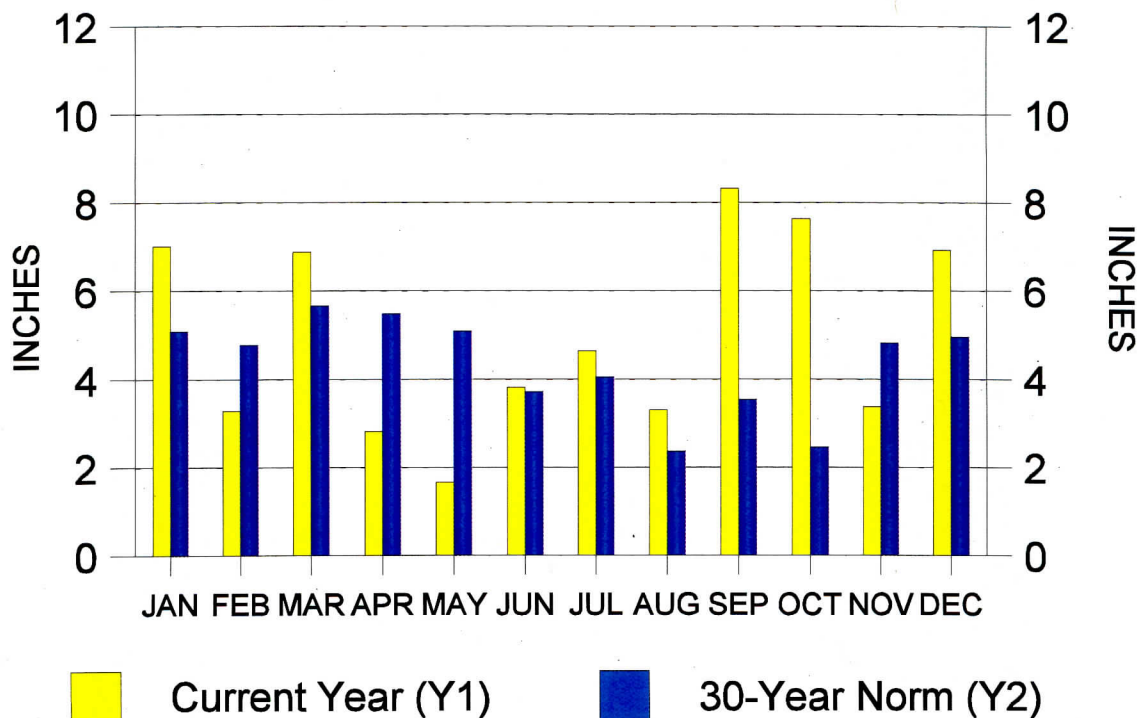
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A. HIGHLIGHTS

B. CLIMATIC CONDITIONS

- In January there was 7.01" of rain.
- Rainfall in February was 3.28".
- Rainfall in March was 6.88".
- A mere 2.82" of rain fell in April, leaving a relatively dry landscape at the end of the month.
- In May we received 1.66" of rainfall.
- Rainfall in June was 3.82". This was 0.1 above normal and was spread out over the month. Still, some of our corn on sandy ground suffered from lack of water.
- Rainfall for July was 4.64 inches—slightly higher than average.
- Rainfall for August was 3.30 inches, which is nearly an inch above normal.
- September was wetter than usual with 8.32 inches of rainfall, compared to an average of 3.54". All precipitation occurred in the latter half of the month.
- Rainfall for October was 7.64 inches, which was more than five inches above normal.
- Rainfall for November was 3.38", about 1.5" below average. The drying out was welcome after a very wet October.
- Rainfall in December was 6.93 ", bringing the cumulative total to 59.68 for the year. This was 7.65" above normal, with most of the excess occurring in September and October.

Year 2002 Rainfall



The thirty-year average annual precipitation is about 52 inches. In 2002, precipitation was 59.68 inches, with most of the excess occurring in September and October.

C. LAND ACQUISITION

1. Fee Title

NTR

2. Easements

NTR

3. Other

On March 26, DPL King, PLB Carpenter, PR Carnathan and RO Darren met with the farm manager for the Thomas's to discuss the water issue at Mathews Brake NWR. The farm manager implied that the Thomas's would not allow the Service to cross their property to install water control structures without moving ahead on the 14 acre land swap on Mathews Brake. PLB Carpenter will meet with Ken Clough to see what happened with the original request to swap the 14 acres on Mathews Brake.

D. PLANNING

1. Master Plan

NTR

2. Management Plan

Linden drafted descriptions of all stations of the Complex for the CCP.

3. Public Participation

NTR

4. Compliance with Environmental Mandates

NTR

5. Research and Investigations

NR98-1. Conservation education and introduction of pondberry (*Lindera melissifolia* [Walt.] Blume) to new sites in Mississippi. Margaret S. Devall. Growth and status of planted pondberry was monitored throughout the year.

A 4'x4' sign and brochure dispenser was erected by the investigators on June 20 near the Alligator Pond research site explaining the pondberry research effort to the public.

NR99-1. Modeling restoration processes in a forest-agricultural landscape. Tim Nuttle visited the refuge April 23-25 and removed all seed collection structures from his study sites.

NR01-1. Food production and avian use of moist-soil impoundments in the Mississippi Alluvial Valley. In January, Dr. Reinecke continued his semi-monthly visits to document duck use at his study sites at the Cox Ponds. Final samples were collected for seed availability studies in

Pools 2, 6, and 8.

Reinecke visited the refuge in May to discuss research potentialities for duck potato with the biologist. He also visited the Cox Ponds to document the status of plant development in certain ponds related to his moist-soil seed production studies. Reinecke is continuing to work on *Sagittaria* (duck potato) propagation.

The decision was made to proceed with *Sagittaria* sampling in Pool 13. Several visits were made in August to the Cox Ponds to collect seed of delta duck potato for use in propagation studies over the next year.

In December, soil samples were taken for *Sagittaria* research at the Cox Ponds.

NR01-2. Estimation of seed availability in managed moist-soil habitats in Mississippi.

Richard M. Kaminski and Ed Penny, Department of Wildlife and Fisheries, Mississippi State University, MS. Sites at the Cox Ponds were selected for sampling as a continuation of last year's work. Final samples were collected for seed availability studies in Pools 2, 6, and 8 by Ed Penny. Sampling was completed by October 17.

NR02-1. Physiological response of pondberry (*Lindera melissifolia*) to various moisture conditions, especially flooding. Theodore Leininger and Margaret Devall.

NR02-5 Latitudinal variation in primary production and carbon stores in baldcypress swamps of the Mississippi River Alluvial Plain. Beth Middleton, USGS, National Wetland Research Center, Lafayette, LA.

NR02-3. Turnover rates of fall-migrating pectoral sandpipers in the LMAV, and

NR02-4. Monitoring movements of Pectoral Sandpipers and Least Sandpipers after radio-tagging and color-marking. David Kremetz and Sarah Lehen.

Pectoral Sandpipers and Least Sandpipers were captured in August at the Cox Ponds by means of mist nets. About 15 Pectoral Sandpipers (out of a goal of 25) were banded and transmitters attached. About 100 Least Sandpipers were banded and color-marked. The Pectorals were tracked daily by radio signal. Counts were made weekly of all shorebirds at the study site, and color-marked birds were recorded.

Supervisory Biologist Bob Strader visited the refuge on April 30 to discuss research needs and to help flesh out proposals for research on *Sagittaria* production and on shorebird food habits and habitat management.

Linden planted duck potato and delta duck potato in Deer Lake III on May 31. There were enough corms left from last year's collection to plant two rows of 15 *Sagittaria latifolia* and one row of 15 *S. platyphylla* on a 10-foot spacing. The corms were to be planted in Pool 7 at the Cox Ponds, but that pool was overcrowded with *Echinodorus*, and planting was not considered advisable at that time.

Paul Hartfield (Endangered Species Office) conducted a mussel survey on the Refuge Complex in July. On Yazoo Refuge, he found that the diversity and abundance of mussels was greatly reduced since the channelization of Steele Bayou.

NR02-2. Influence of migratory shorebird foraging on macroinvertebrate community composition in the LMAV. Jack Grubaugh and Darren Mitchell, Department of Biology, University of Memphis, Memphis, TN.

Exclosures and control areas were established in two impoundments on Yazoo and one on Morgan Brake NWR. Core samples were collected at weekly intervals during the study period.

6. Other

In November, Private Lands Biologist (PLB) Chris Woodson was notified by Dr. Paul Hamel, Research Biologist, USDA Forest Service, Stoneville, MS, of the printing of their recent publication: Hamel, P.B., and C.A. Woodson. 2000. *Brown-headed cowbird removes egg from cerulean warbler nest*. Migrant 71(1):1-3.

E. ADMINISTRATION

1. Personnel

In May, Chris Woodson, former Hillside NWR Manager, officially assumed the Central Mississippi Refuges Private Lands Biologist position. Travis Carpenter, former Private Lands Biologist, laterally transferred to the Hillside NWR Manager position.

Jay Smith was detailed to Yazoo NWR October 10, 2000. His tour of duty at Yazoo included December 16, 2000 through June 30, 2002. He transferred to Bayou Cocodrie NWR.

1. Allen, Christopher A., Range Technician (Hillside), GS-6, PFT, EOD 06/14/92.
2. Barnes, M. Dove, Office Automation Clerk (Complex), GS-4, PFT, EOD 08/14/94.
3. Brown Jr., Haze, Equipment Operator (Private Lands), WG-8, PFT, EOD 03/23/92.
4. Carnathan, Claude W., Police Officer (Complex), GS-8, PFT, EOD 02/15/87.
5. Carpenter, T. Travis, Wildlife Biologist (Private Lands), GS-07, PFT, EOD 02/28/99.
6. Dorris Jr., Lamar C., Forester (Complex), GS-11, PFT, EOD 05/19/89.
7. Durham, Hugh I., Equipment Operator (Panther), WG-10, PFT, EOD 05/21/89.
8. Linden, David R., Biologist (Complex), GS-11, PFT, EOD 10/26/87.
9. King, Jeffrey A., Deputy Project Leader (Complex), GS-13, PFT, EOD 05/00.
10. King, Laura R., Natural Resource Planner (Complex), GS-12, PFT, EOD 08/00.
11. Manzo, Frank D., Range Technician (Panther Swamp), GS-7, PFT, EOD 11/25/96.
12. Morganfield, Ollie, Tractor Operator (Yazoo), WG-6, PFT, EOD 11/10/89.
13. Smith, Johnny Jay, Assistant Manager (Yazoo), GS-05, TFT, EOD 10/10/00.
14. Stafford, Forrest E., Automotive Worker (Yazoo), WG-8, PFT, EOD 03/16/97.
15. Stevens, W.F., Assistant Manager (Panther Swamp), GS-11, PFT, EOD 10/18/92.
16. Wilkins, Timothy M., Project Leader, GS-13, PFT, EOD 12/28/80.
17. Yelverton, Charla I., Office Assistant (Complex), GS-7, PFT, EOD 03/24/82.
18. Yelverton, Michael W., Equipment Operator (Yazoo), WG-8, PFT, EOD 08/17/87.

2. Youth Programs

YCC Program

3. Other Manpower Programs

NTR

4. Volunteer Programs

Five applications were received from the Student Conservation Association, and attempts were made to interview prospects. [The first selectee, who was contacted in December and was to begin work in February, called two weeks later and canceled.] Contacts with other candidates did not work out for various but a new list of candidates was requested from the SCA.

After going through numerous applications from SCA, a suitable volunteer could not be found. The applicants had decided to either take other positions or they were not considered suitable. Instead, a local man from near Louise, Mississippi, Bart Barrack, started as a volunteer on March 6. Mr. Barrack was recently active with The Nature Conservancy and had served with the Peace Corps. During his refuge tour of duty, he was keenly interested and an energetic worker and was very beneficial to our biological programs. He worked with us until the end of May.

5. Funding

In October, PLB Woodson turned in the Hillside NWR imprest fund of \$100 to Yazoo NWR. The small size and spending limitations made the fund no longer practical to maintain.

6. Safety

Dorris served as the Complex Safety Officer for 2002. The Safety Committee was comprised of Frey, Manzo, Smith and Dorris.

Dorris talked with Brian Hardison on January 31 concerning Frey, Manzo, and Smith and their training needs to become the CDSOs for their respective stations. Hardison thought this was a good idea. Dorris would still serve as a safety coordinator to provide guidance. Each has to complete 30 hours of training via computer using our safety and occupational health CDs. This, however, does not take the place of the OSHA 600 course requirement that needs to be taken within 6 months after accepting the duties. Managers need approximately the same amount of time on the safety CD, and all employees should have to 6 hours of training. Hardison advised going to the Safety Home Page to view other needed safety programs and training.

Dorris requested a Tier II report form from the MS Emergency Management Agency during March. After receiving it the report was completed out to make mention of our gasoline and diesel quantities kept on hand at the headquarters. It was sent to Joel Sandifer with the Washington County Emergency Management Agency on March 26. This was done to satisfy a deficiency reported during our environmental compliance audit.

Dorris completed the Health and Safety training CD on April 30. The course record and evaluation form were sent to the NCTC.

In May, Dorris made a request to Jim Poje in Engineering for \$6,600.00 to perform 6 year testing on three water wells on the Complex. By year's end, no money had been appropriated. Poje said possibly V.A. Sridhar's office in Denver might come up with some money. We are still on the list whenever money becomes available for this project. Actually, five wells need testing for organics/inorganics and metals across the complex.

Stafford requested PPE for chemical mixing in May. Dorris ordered half-mask respirators, filter cartridges, and aprons for the job. Each station was issued one each of the masks, cartridges, aprons, package of rubber gloves, and goggles.

At Wilkins' request, Dorris provided needed Environmental Compliance Audit Program (ECAP) corrections. Wiping our slate clean of all noted deficiencies.

In August, Dorris emailed a request to Poje for another 280-gallon, used oil container. Morgan Brake NWR.

Linden for had Waterfresh of Greenville do the annual testing of nitrates/nitrites, copper, and lead for Yazoo Refuge. Everything checked out fine in August.

Dorris wrote a Pollution Prevention (P2) Plan for the Complex in August. To correct another audit deficiency.

B. Linden called all numbers on the Emergency Response Directory to verify they were correct. Dorris made corrections, and copies were distributed to all staff in September.

Dorris discussed with Linda Harbert the OWCP claims recently submitted. Hopefully, everything is now on track with the CA-1s, CA-16s, and SMIS reports. Linden's eye and Stafford's back were OK by the end of the year.

Frey and Manzo were mailed Collateral Duty Safety Officer CDs in October for training exercises.

Gregg Tripp, engineer and owner of Mesa Applied Technologies, LLC of Cortez, CO; visited our Complex on November 19 and 20. Mr. Tripp had been contracted to write our Spill Prevention Control and Countermeasure Plans for our stations. It will take 30 to 60 days for receipt of his draft plans.

Dorris talked with Jim Poje on November 15 and requested lead-based paint notification sheets for tenants of refuge housing, and information for 6 year water testing and for information for purchases re-refined oil.

With assistance from Bill Starkel and Brian Hardison in December, Dorris discovered what courses are needed for a Spill Response Coordinator. Dorris was sent information on NCTC's Mobile, Alabama course "Oil and Chemical Spill Response" to be held January 27-31. Also, a Hazwoper course is needed. A free course is offered to USFWS employees by the EPA. Dorris forwarded all applicable information for these courses to Billy Frey, who has agreed to take this responsibility.

7. Technical Assistance

PLB Woodson provided a copy of 1 meter resolution imagery and the Joint Ventures MAV Conservation Planning Atlas to the Humphreys County NRCS field office. PLB Woodson showed Soil Conservationist Chad Fieber how to use the imagery and atlas information. The information will be helpful during WRP ranking since it provides locations of Bird Conservation Zones, NWRs, FmHA lands, and existing WRP easements.

8. Other

Maintenance personnel attended a Wage Grade workshop in Atlanta the first week of February.

PLB Woodson participated in the OPM Government-wide survey on Human Capital in August.

F. HABITAT MANAGEMENT

1. General

NTR

2. Wetlands

All impoundments had plenty of rain to keep them at or above desired levels throughout January. One exception was the land-leveled Silver Lake Impoundment, which was a bit shallow on the upper end where red rice grew in profusion. Deeper water was needed for better duck use and cleanup of

red rice.

Two wells at the Cox Ponds collapsed due to well screen failure and subsequent pumping of the gravel pack out of the well hole. In one well, the shaft came loose and dropped to the bottom of the well. These two wells were very old and probably had fulfilled their life expectancy. Acquisition requests for new wells were submitted.

A status chart for Yazoo impoundments was made to show the open/closed status. A remarks column for each impoundment will supply ready information for management and help keep up with the 80 impoundments on the refuge.

In March, a field impoundment was created north of Dead Man's by constructing a low levee across a broad drainage area. The impoundment already contained depressions which would hold water, but the levee will increase the area capable of holding water several-fold.

Water was released in March from GTR areas and field impoundments to be planted in corn.

Pipe-arch structure "C" was successfully closed after being jammed open by log debris all winter, allowing a considerable flow into Swan Lake. The debris had finally washed through. Closing the gate will help lower water in Pool Three of Swan Lake, which had been at a constant high level.

The top 2-3 flashboards were pulled at Weir B on April 3, beginning the drawdown of Swan Lake Pool 2. Additional boards were pulled as the water dropped, but the inflow from Pool 3 was significant, and de-watering was slow. By the end of the month, almost all of the seven boards were pulled.

The water levels in Big Lake and in the Cope Impoundment were lowered twice during April to get water off the hardwood trees and to compensating for rainfall.

A beaver dam was raked out at the old Bear Garden Road on April 29 to de-water the forested area to the south.

Drainage was begun on the Pryor Impoundment near the end of April. Beavers were very active in preventing drainage at the three structures involved. All but the main ditch was drained by the end of the month.

Water was pumped into Pool 7, and Pool 10 was dropped slightly to prepare for wading bird levels prior to a shorebird drawdown later this summer.

Cox Ponds

Pool 1.—*Sagittaria* corms were planted in Pool 1 of the Cox Ponds. Two-thirds duck potato (*S. latifolia*) and one-third delta duck potato (*S. platyphylla*) were intermixed on a 100 ft., grid in the 12-acre pond. Since the well was out, we were unable to pump water into Pool 1 before it dried out. Our efforts to pump water in from the adjacent ponds was delayed because of equipment problems. Consequently, instead of having duck potato, the bottom became dominated by *Sesbania* with a fair amount of wild millet. The pool was watered to a depth of 0.83' by June 19 by means of a re-lift pump, but the *Sesbania* was already too tall. Millet had already sprouted and grew through the water as well. Pool 1 was mowed in late August to control *Sesbania*. A significant part of the bottom had already produced a crop of wild millet which had already senesced.

Fig.1 This thatch of dead wild millet stems and leaves protects fallen seeds from blackbirds, and the shading prevents most germination until the pond can be flooded for waterfowl use.

8-28-02 DRL



Fig. 2 Seed production from wild millet can be fairly heavy. This amount of seed was under all the thatch as in Figure 1 above. 8-28-02 DRL

Pool 2.—In February the tilt pipe became dislodged and most of the shallow water (which was shallow) drained out. This created a feeding opportunity for gadwalls, which used the pond in large



numbers for several days as the water was draining. By March 15, Pool 2 was drained. The lower portion of this pool, which was disked earlier in the year, came back primarily in pigweed and smartweed (*P. lapathifolium*) which was disked on June 4. The upper part was dominated by wild millet, and later abundantly of smartweed through and over the millet.

Pool 3.—This pool was scheduled for deep water over the summer. Without a well, the water was not deep enough to control knotgrass, which is a problem in this pool. We relayed water from Pool 5 to Pool 1 through this pond using the re-lift pump. We had only enough water in Pool 3 for about a foot of depth to remain, which encouraged, rather than controlled, knotgrass. About one-third of the pool remained open water. Pool 3 water level was brought up to 1.5' in August. During the time the well was out, the shallow water allowed several colonies of *Sagittaria* to become established, as well as knotgrass, and lotus. The pool was left shallow this year to accommodate the *Sagittaria*.

Pool 4.—In February, Pool 4 was lowered in order to disk weed residue later and by March 15 was drained. The lower end had a good stand of wild millet, but smartweed eventually took over. Pool 4 was to be used for shorebirds this year, but plant residue was too rank due to the pond being off-schedule because of the well outage. Smartweed and last year's plant debris was disked in August and flooded to 1.29' on August 27. The water was allowed to wane to benefit shorebirds, as the pool was scheduled this year.

Pool 5.—There was no emergent growth in this pond all year. The water looked yellow from chlorotic unicellular algae. The aquatic insects were observed to be plentiful as they popped to the surface for air. There were still large crawfish, although not as numerous as last year. Pool 5 dropped from 0.96" to 0.14" through the month of August by evaporation, producing excellent shorebird habitat and excellent shorebird use.

Pool 6.—By March 15, Pool 6 was drained. After spraying with Roundup in May, the upper end was disked on June 4. *Sesbania* became dominant. The lower end was sprayed with 2,4-D in May, but the rate was not strong enough to kill smartweed. It became a mixture of wild millet with a heavy component of smartweed (*P. lapathifolium*) in the lowest part.

Pool 7.—Managing for duck potato has encouraged water plantain (*Echinodorus* sp.) to the point that it covers 80% of the pond. There are duck potato colonies here and there (<5%). *Sagittaria* was not planted as planned due to the presence of water plantain. Pool 7 was brought up to 1.20' on August 14. With complete coverage by *Echinodorus* and other emergent aquatics, this pool lost water quickly and needed frequent replacement.

Pool 8.—By March 15, Pool 8 was drained. After spraying with Roundup on May 20, the lower part of this pool was disked on June 4. After *Sesbania* was seen in the seed leaf stage, water was pumped for two days, bringing it to 2.2' at the structure. On June 20, a slow drawdown was started which carried into July. *Sesbania* in the upper disked area was not killed, but was controlled in areas with longer flooding. The high end of this impoundment developed a dense stand of wild millet along with other moist-soil plants.

Pool 9.—Water was held in this pool all year, but because of the lack of a well, water was not as deep as planned. Lotus covered 75% of the pond, and the shallow end had knot grass and other unwanted perennials. Pool 9 was sprayed with Glypro on August 15 to control lotus with very effective results.

Fig.3. American lotus dominated this pool and had to be sprayed with glyphosate. 8-28-02 DRL

Pool 10.—By the end of June, this pool was poised for a shorebird drawdown. The water was dropped very close to the exposure level so that wading birds could use it. On July 15, 110 white ibis were counted here along with other wading birds. Shorebird drawdown was started in mid-July with the exposure of mudflats at the shallow end. After that, evaporation continued the drawdown at a slow rate. Pool 10 dropped from 2.35' to 1.80' by evaporation for shorebird management.

Pool 11.—We have managed to keep deep water in this pool all year. Lotus covered 75% of the surface, and there were several cattail colonies. Pool 11 was sprayed with Glypro on August 15 to control lotus, cattail, burhead, and frogfruit. On August 28, water was raised from 2.01' to 2.72' to maintain deeper water, for the control of certain vegetation and for the survival of several fish species stocked earlier this year.

Pool 12.—This pool was sprayed last year to control knotgrass, lotus, and burhead, and remained relatively clear of emergent growth. There were some knotgrass colonies barely above water. Water was dropped from 1.90' to 0.91' by August 15, and allowed to evaporate to 0.70' for shorebird use.

Pool 13.—This pool was carpeted with duck potato last year and received heavy use by waterfowl, but



regrowth this year was slow in starting. Three inches of water was added July 9-10 to maintain shallow water. Water in the lower 70% of the pond (below the cross-levee) was very turbid and apparently inhibited the sprouting of *Sagittaria*. Water was lowered on July 29 to enhance sprouting, which had finally begun to minimally show. It had been looking doubtful that anything was going to

grow. It was raised twice in August to keep up with evaporation and keep *Sagittaria* in water. On November 13, 4000 snow geese and 1000 white-fronts were counted in this pool.



Fig. 4. Pool 13 was managed successfully for duck potato (both species) by keeping it in shallow water (12") throughout the growing season. Delta duck potato (*Sagittaria platyphyllum*) seems to tolerate continuous deep flooding better than duck poatato (*S. latifolia*). 8-28-02 DRL

Pool 14.—Lack of a water source kept this pool below its scheduled deep level; however, it did grow a diversity of desirable moist-soil plants.

Other Moist-Soil

Several moist-soil areas have responded well to mowing of cocklebur and smartweed. In most cases, grasses were already established and quickly became dominant. Areas mowed were the Q-139 Impoundment, Herman IV, and Skunk Corner I and II.

In September water was pumped at the Cox Ponds in seven of the 14 pools to maintain minimum planned water levels. Rains raised levels considerably toward the end of the month and started flooding dry impoundments. Due to the frequency of precipitation this summer, wetlands were already floodable from rainfall. Last year the ground was so dry and cracked, much rain was needed to start flooding the impoundments.

All structures at the Pryor Impoundment were boarded up during the last rain in September and caught a significant amount of water in the standing rice crop.

Water control structures were closed in Pools 2, 6, and 8 after final seed samples were taken for seed production research in October. WCSs were also closed in other moist-soil units and moist field impoundments throughout the refuge.



Fi

5. Foxtail millet (*Setaria*) was prolific this year in wildlife openings and some of the drier moist soil areas such as Herman Impoundment IV (pictured). 8-28-02 DRL

g.

Three new field impoundments were completed in November, two at Dead Man's, and one at the head of the new Holt Collier Trail. WCSs were closed in moist field impoundments and GTRs throughout the refuge. Field impoundment closings were delayed because crop harvest was delayed due to October rains.

Flashboards were installed for the first time in a WCS which was installed last year north of the Warner Shed.

3. Forests

As most of the FmHA-transferred properties have been reforested and refuge lands where appropriate, no planting was scheduled this year. However, Steve Gard had excess seedlings at the North MS Refuge Complex. Carpenter helped Dorris pick up approximately 13,000 excess hardwood seedlings on February 27 from Becky Woods. With these donated seedlings another 57 acres on Yazoo Refuge were reforested. Seedling planting began March 4.

Yazoo field 119, totaling 17 acres and located at Weir D, was planted using 2,200 willow oak, 900 sweetgum, 1,600 water oak, 100 Nuttall oak, 200 red maple, and 100 persimmon seedlings.

Yazoo field 120, containing 15 acres and located at Dead Man, was planted with 500 sweetgum, 600 green ash, 200 persimmon, 200 baldcypress, 300 red maple, 2,000 willow oak, and 300 water oak seedlings.

Yazoo field 99, consisting of approximately 25 acres and is located along the bayou S. of Bear Garden bridge to Weir A, was planted and replanted with 2,300 baldcypress, 900 Nuttall oak, 400 green ash, 1,200 willow oak, 450 persimmon, 1,100 sweetgum and 200 red maple seedlings.

After planting, a file map was made for the 2002 reforested areas and data was entered into the FmPro5 "reforestation" file. On the 1st of April, Dorris entering the reforestation tracking system information and emailed it to Blaine Elliott with the Joint Venture Office in Vicksburg.

Two mechanical problems were noted with the F-400 seedling planter. Stafford repositioned and welded the foot back in place. Also, the planter was in need of bearing work on the left packing wheel. It may require a new spindle to take up the slack which prevents the wheel from running true.

On January 15 at Bob Strader's request, Dorris attended the oak regeneration workshop held at the Mississippi Museum of Natural Science in Jackson. Attempts are being made to push oak seed production up to year 7 or earlier. This is accomplished by using genetically superior seed, growing the seedlings in a nursery situation for several years and using an auger to plant them in the field. This is a very intensive/expensive operation and does not look operational for USFWS needs.

Dorris looked at survival in various reforestation areas during 2002. On January 30, Dorris visited the Carter and Haynes tracts to check seedling survival. A 4-wheeler trip across the western half of the Carter tract revealed seedlings to be doing quite well. They were sparse in some areas, but most areas contained seedlings. Time will tell. On the Haynes tract, which was replanted last year, seedlings were also detected in most areas. However, the large, two-year old seedlings did not do as well as hoped. Across the board it appeared only half of these trees put on leaves last year. Others appeared to have re-sprouted and it may be a different story as things progress. In species such as green ash, all seemed to be surviving. This has been a tough site to reforest over the years, so hopefully it will flourish. Dorris looked at trees on Snake Creek Brake on May 9 and in most places they were looking good. Also, the trees were checked on the Brown tract on May 23 and they looked better than once anticipated.

The annual Southern Hardwood Forestry Research Group meeting was attended by Dorris, J. King and Carpenter on February 26.

Environmental Synergy, Inc. (ESI) people visited the Complex the week of July 22nd to take soil samples of the carbon sequestration, reforestation areas. Later in the year, on December 10th, Dorris assisted ESI's Clyde Stewart and Dan Tabberer, by mapping survival plots on the Carter tract

and Panther Swamp NWR. After going to the field, Tabberer questioned boundaries drawn on the maps. Dorris used the PLGR and ArcView and agreed with the discrepancies. One-hundred and six acres were needed of 1999 plantings to supplement what was thought to have been planted on the Carter tract. Twenty-six acres were needed to augment the acreage on Panther Swamp where an impoundment was held out. Other 1999 plantings will be located in 2003 to remedy this situation.

Dorris began taking photos and tree measurements in September at plots in reforestation areas for documentation of stand development through time. Pictures in and new growth data, were filed in the photo plot notebook. It is doubtful how much longer pictures can be taken of single trees in some areas, as they are occasionally 20 feet tall. Many areas are closing in to the point that other rows block shooting the intended tree.

On March 25, Dorris purchased explosives, in the amount of \$2,120, from David Rice of Greenwood Ms, to be used in blasting beaver dams. The explosives were delivered to Morgan Brake that same day. Dorris received, on June 20, approximately \$900 of explosives which were donated by Larry Moore, Ranger at Delta National Forest.

In March, the Panther Swamp forest habitat management plan was sent to John Simpson, forester at Bayou Cocodrie, to assist in their plan writing.

In April, Linden and Dorris received a certificate verifying that Yazoo Refuge is the proud owner of the National Champion swamp cottonwood.

Also in April, Bob Strader, and Dorris discussed Yazoo's role in an upcoming forest management workshop.

On October 8, Dorris met with Keith Ouchley, Dan Twedt, Randy Wilson, Chuck Hunter, Jon Wessman, John Simpson, Pat Stinson, Bob Strader, and Allen Mueller for a pre-workshop conference. The group toured Bayou Cocodrie and Tensas River NWR's and enjoyed many mosquitos.

The forest management workshop was held in Vicksburg November 5-7. Approximately 60 biologists and foresters with the NRCS and FWS met to discuss forest management practices related mainly as to Neotropical migratory birds and other trust species, such as the threatened, Louisiana black bear. Other topics discussed were old growth forests and what to do with thousands of acres of reforestation areas attaining age across the LMV. Four stops occurred on Tensas River NWR and Yazoo NWR. Various scenarios were given to workshop participants at Yazoo and marking paddles were handed out to pose real life decisions to be made, distributor. Many were in awe of the thought process needed in the field to carry out the actual habitat management. It was a beneficial meeting and appeared to be enjoyed by all attendees.

Dorris assisted Linden and Barrack when needed with grubbing out beaver dams and plugged structures in various locations on Yazoo refuge in April.

Dorris continues to take gage readings from the Steele Bayou bridge at Bear Garden. The monthly and quarterly Steele Bayou gage reports are sent to the Corps in Vicksburg.

On May 1, 2002, as a reference, Dorris provided information to Dr. Gary Miller with the USFS in Morgantown, WV, concerning Dr. Callie Schweitzer's three-year position review. She is now working with the Forest Service near Huntsville, AL.

On May 16, Dorris attended the Southern Hardwood Forestry Group meeting which was held near Ruston, LA. Other Service foresters were in attendance and includes Leif Karnuth, Jeff Denman, Richard Smith, Jamie Kellum and John Simpson.

On May 21, Dorris met with Ted Leininger, James Cummings, Michael Andreus with University of Washington, and Megan Mattox of Yale University to discuss Landscape Management Systems (LMS). LMS is a computer program which would be useful in illustrating forest manipulation on screen, whether discussing silvicultural treatments or carbon sequestration rates. Dorris will work with them on a pilot project representing our southern bottomland hardwood forests.

The Dorris participated in June 3-7 North Mississippi Refuges biological review in Grenada, and afterwards, prepared a synopsis-up for Becky Woods and Laura King.

Dorris also reviewed and made changes to the forest habitat management plan for the North Mississippi Refuges Complex at Steve Gard's request. It should be approved at the regional level with no further amendments needed. Dorris emailed the changes to Gard in June.

On August 10, Dorris met Gilbert Donald with B & G Wood Products, Inc. on Snake Creek Brake. Dorris provided Mr. Donald with a special use permit for hauling timber across Snake Creek Brake roads. Dorris received a \$50.00 administrative check and a \$20,000.00 performance bond. C. Yelverton forwarded them to Denver until successful completion of the project. In December, DPL King returned the \$20,000.00 performance bond to Donald with the stipulation that some road work was needed on Snake Creek Brake as conditions improve.

Dorris provided information and maps throughout the year to L. King to be used in the Comprehensive Conservation Plan (CCP).

The PLGR was sent to Michael Long in Lakewood, Colorado the week of March 4 for re-encryption and battery replacement. It was soon returned. Extensions for X tools and DRG tools were loaded into ArcView v3.2 during March. Dorris input PLGR codes following the re-encryption process, and the unit appeared to be providing usable information. Carnathan his PLGR, returned since he's using a lighter weight GPS unit. ArcView has become a very useful tool in mapping areas, and Dorris provided ArcView assistance to Carpenter, Woodson, and Linden.

Technical assistance was provided to others during the year including the following:

Dorris provided technical assistance to Mark Yarborough early in the year by providing a sampling method/cruise layout for his oldest son's science project. He was comparing tree species and numbers inside the levee (Merigold, Ms) versus outside the levee (Dahomey NWR).

In February, Dorris compiled information relevant to the Sharkey site comparison of reforestation techniques study for University of Arkansas' PhD candidate, Robert Doster. Doster is working with the Arkansas Fish and Wildlife Research Unit putting in bird transects to assess numbers, species, and preferred habitat types. He and three others stayed two nights on Yazoo Refuge while they surveyed the three replicates of four treatment areas on the Brown tract.

Technical assistance was provided to Jim Barnes in Glen Allan concerning Maple disease problems.

In September, Dorris reviewed Dan Twedt's research proposal for thinning hardwood plantations. This was done for Bill Uihlein. A couple of concerns were emailed to them. In November, Dorris forwarded Twedt's proposal to Dan Benfield in the regional office. This study will look at vegetation response.

Dorris provided Dan Twedt with reforestation area data on the October 11 which was pertinent to his bird studies.

On October 15, Dorris reviewed for Steve Meadows, scientist at the Southern Hardwoods Lab, a newly developed tree classification system. Concerns were discussed by phone.

Dorris sent Snake Creek Brake reforestation information to Tom Berchem in the regional office.

Dorris provided Julia Ota, political science student at Wellesley College in Massachusetts, with a forest habitat management prescription to give an example of forest management carried out on our Complex.

Another Freedom of Information Act item that took place during November was the sending of oil exploration information to Belinda McCain in the regional office. She has been taxed with this request for our region and is looking back to December, 1986, at gravel, hard rock mineral, oil and gas on split-estates.

Dorris deployed Gypsy moth trap boxes on all Central MS refuges on June 19. They were removed on the 28th. No presence of the Gypsy moth has been detected thus far. A report was sent to Roger Menard with the USFS in Pineville, LA.

Dorris worked with L. King for a few days to write the forestry portion of the CCP in November.

The Sharkey Site (Brown Tract) restoration studies continued during 2002.

Last September, Dr. Emile Gardiner with Stoneville's Southern Hardwoods Lab was shown a suitable site on the Brown tract to put in a black willow study area. Different length cuttings will be used versus varying levels of weed competition to answer the question, "*Does cutting length influence early survival, growth, or above ground biomass production of black willow planted on former agricultural land?*" The site was to be subsoiled and planted winter/spring 2002. Half of the black willow study area was chisel-plowed, but gummy conditions halted the operation. Gardiner will the study for another year. Collecting cuttings was also a problem.

On February 25, Dorris met with Clark Baldwin, staff assistant to the Chief of Forest Service in silvicultural research. Ted Leinenger, Emile Gardiner, Paul Hamel, and Carl Smith provided Baldwin with a tour of the Sharkey site.

Dorris and Wilkins attended a Sharkey site meeting on March 26 to discuss treatment layouts and harvesting of the cottonwoods. Many researchers were there to provide their opinions in relation to the information they are trying to receive from this study.

A deer fence is needed around the impoundment area to protect future pondberry studies. Dorris and Smith determined 5,200 feet of fence would be sufficient. Dorris contacted Pat Calhoun of Pat Calhoun Fencing Contractors, Inc. in Flowood about providing a bid for the fencing work. The latest development is that the Corps will pay to have the fence erected.

Gardiner's Notes on Research and Demonstration Activity at the Brown Tract: CY 2002

Field Trips to Site:

25 February 2002 – Visiting Silviculturists from the Forest Service, Washington Office
(6 people)

26 March 2002 – Meeting to discuss and plan future treatments in large-scale study.
(11 people)

April 2002 - Chief's Audit visit to the Sharkey Site

Presentations at Meetings:

Gardiner, E. S., J. A. Stanturf and C. J. Schweitzer; An afforestation system for restoring bottomland hardwood forests: biomass accumulation of Nuttall oak seedlings interplanted beneath eastern cottonwood. Presented at the International Conference on Restoration of Boreal and Temperate Forests, Vejle, Denmark 29 April to 3 May, 2002.

Hamel, P. B. Bird community differentiation in restoration of bottomland hardwood forests. Presented at the International Conference on Restoration of Boreal and Temperate Forests, Vejle, Denmark 29 April to 3 May, 2002.

Ora Cross, N. M. Schiff, and P. B. Hamel. Drought modifies effects of predators and parasitoids on the goldenrod gall fly. Presented at the International Conference on Restoration of Boreal and Temperate Forests, Vejle, Denmark 29 April to 3 May, 2002.

Schiff, N. M and P. B. Hamel. Goldenrod gall flies on Sharkey Site: if you build it they will come. Presented at the International Conference on Restoration of Boreal and Temperate Forests, Vejle, Denmark 29 April to 3 May, 2002.

Publications:

Gardiner, E. S., J. A. Stanturf and C. J. Schweitzer; An afforestation system for restoring bottomland hardwood forests: biomass accumulation of Nuttall oak seedlings interplanted beneath eastern cottonwood. Abstract published in the Proceedings of the IUFRO Conference on Restoration of Boreal and Temperate Forests. Danish Forest and Landscape Research Institute, Reports No. 11, pp.232-233.

Hamel, P. B. Bird community differentiation in restoration of bottomland hardwood forests. Abstract published in the Proceedings of the IUFRO Conference on Restoration of Boreal and Temperate Forests. Danish Forest and Landscape Research Institute, Reports No. 11, pp. 86-87.

Cross, O., N. M. Schiff, and P. B. Hamel. Drought modifies effects of predators and parasitoids on the goldenrod gall fly. Abstract published in the Proceedings of the IUFRO Conference on Restoration of Boreal and Temperate Forests. Danish Forest and Landscape Research Institute, Reports No. 11, pp.187-188.

Schiff, N. M and P. B. Hamel. 2002. Goldenrod gall flies on Sharkey Site: if you build it they will come. Abstract published in the Proceedings of the IUFRO Conference on Restoration of Boreal and Temperate Forests. Danish Forest and Landscape Research Institute, Reports No. 11, pp.206-207.

Paul B. Hamel, 28 Feb., 2003 Wildlife Research Activities on the Sharkey Site 2002:

We continued our work on the winter bird communities on the Sharkey Site in winter 2001-2002, including conduct of Winter Bird Populations Studies on all 12 plots. The results of this work were presented to the Symposium in Denmark in April. We also conducted paired tests of another field technique designed to monitor winter populations of cryptic species like wrens and sparrows. The results of these comparisons were prepared as a manuscript that is still in preparation. We also put out milk carton bird houses in an effort to attract nesting chickadees to the NUR plots. [None of the boxes were used by anything except paper wasps.]

In winter 2002-2003, winter bird populations studies were conducted on the NUR plots only, in preparation for the harvest treatments in a future year. We replaced the paper nest boxes were replaced with wooden ones, and we will continue to monitor use of them by wildlife species into the future.

Schaffler. Fire boots were ordered for Woodson, Morganfield, and Stafford. Forms were provided showing what gear to carry on a fire to staffers potentially going on western fire details.

In May, Dorris reviewed the firefighter CD entitled "Entrapment Avoidance", which was sent out by Bob Eaton in the regional office. Dorris provided Bunk Twiss at MS Sandhill Crane NWR the incident qualifications biographical data for Stafford and Woodson.

Stafford replaced the belt on the 300 gallon slip-on fire pumper in June.

A weekly, firefighter availability report, beginning in July was sent to Bunk Twiss and Mary Duden at MS Sandhill Crane NWR.

On July 5th, Morganfield, Woodson, Stafford, and Carpenter went to Bon Secour NWR to assist in the mop-up of the "4th of July" fire (Figure 6). They returned on the 8th.



Fig. 6. From left: Carpenter, Steve Brook, Morganfield, Woodson and Stafford are pictured in this group at the Bon Secour NWR "4th of July" fire. 07/02 TC

Morganfield would have been fighting fire in Chelan, WA, in July, but the dispatcher did not call him the day before departure as indicated.

In August, Dorris emailed to Roger Boykin Complex organizational codes so we can eventually get into the system for fire data entry by computer.

In October, Dorris provided Mississippi Forestry Commission's Martha Moore with a list of the Complex's fire-fighting resources. She completes an annual report for the State of Mississippi showing potential, local assistance during wildland fire incidences.

Dorris consulted with Dusty Dendy in December concerning RxB3 requirements. Dendy will call when burning so Dorris can assist in prescribe fire operations. He advised that prescription writing is becoming more complicated as complexity ratings are required to be quite lengthy regardless of the burn.

10.



Pest Control

Bull thistle, an invasive species, was discovered in several locations and was removed by cutting the stems by hand and disposing of any heads which were blooming or had already bloomed.

<u>Location</u>	<u>Number of stems</u>
Lizard Lake Wildlife Opening	85
Skunk Corner (roadside)	2
Indian Mound field	9
Roadsides between Alligator Pond and West Equipment Shed	78

Fig. 6. Bull thistle had gained a foothold in the Lizard Lake Field by the time it was discovered. All stems were cut by hand, and ripe heads were disposed-of. 8-22-02 DRL

11. Water Rights

NTR

12. Wilderness and Special Rights

NTR

13. WPA Easement Monitoring

NTR

14. Farmers Home Administration Lands

PLB Carpenter and ROS Smith inspected the North/South and East/West Tice Tracts on January 23rd to find that several acres on the N/S tract had been burned and a trailer roof was on the property. Adjacent landowners and the local postman were questioned if they knew when the fire was and how it was started. A local farmer said a tornado put the roof on the property and gave the name of the owner. Smith filled out an incident report.

ROS Smith and PLB Carpenter met with Chris Zepponi on January 22nd at the Hester Tract to discuss some unauthorized bush-hogging on the conservation easement area. Mr. Zepponi admitted that his father bush-hogged the lanes on the Hester Tract to improve deer hunting from his stand. An incident report was completed, and Mr. Zepponi was informed that he would have to reforest the destroyed area next winter. Carpenter determined the acreage and worked with the Mr. Zepponi to get this matter settled.

PLB Carpenter and AF Dorris spent four hours on the Hester Tract cleaning-up a garbage dump and erecting two new conservation easement signs in January.

Three landowners that disputed the new Brown Tract survey were contacted and sent a letter, maps and a copy of the survey. The landowners were informed that the Service will enforce the boundary line and no further disputes occurred.

PLB Carpenter and AF Dorris conducted a site visit on the Peebles Tract in Humphreys County. The reforestation looked to be doing well in some places and not so good in others. While on the tract, a violation was documented. The adjacent landowner had cleaned out a site in the reforestation area to park his equipment. An incident report was filled out and sent to PR Carnathan.

In March, DPL King, PLB Carpenter, RT Frey and RT Allen met at the Dew Tract to discuss the current cooperative farming agreement. RT Frey later discussed with the rental farmer, options on when then cooperative farming arrangement could be ended.

PLB Woodson and EO Yelverton rehabilitated the levees on two moist soil impoundments at the Brown Tract in July.

PLB Woodson spoke with Randy Wilson, Joint Ventures Office, Vicksburg, MS regarding the need for plotting FmHA moist soil impoundment information in ArcView. Once the location of the impoundments are mapped, annual management practices will be recorded in a Joint Ventures database.

PLB Woodson created ArcView location maps for lands south of the Middleton-Miller-Zepponi Tract that were available for purchase.

15. Private Lands

Mississippi Partners Program (MPP)

Mississippi Partners Projects (MPP), a cooperative partnership of the U.S. Fish and Wildlife Service, Mississippi Dept. of Wildlife, Fisheries and Parks, Ducks Unlimited, Delta Wildlife Incorporated, and the Mississippi Fish and Wildlife Foundation, provides technical assistance and water control structures to private landowners for the purpose of managing harvested croplands, waterfowl food plots, moist soil areas, forested wetlands, or other natural wetlands to provide habitat for waterfowl, other migratory birds, and related wetland species.

PLB Carpenter spent a considerable amount of time trying to get cooperators to pick-up their structures at the 2001 MPP fabricator Ferguson Welding. Ferguson Welding moved to Louisiana and cooperator structures had to be their lot by the end of January. EO Brown hauled two loads of pipe from Ferguson Welding to Yazoo NWR.

PLB Carpenter modified the 2001 MPP Cooperative Agreement between the Service and Ducks Unlimited extending the expiration date from December 31, 2001 to April 1, 2002. The agreement was used as a means of spending the Service's 2001 MPP funds.

PLB Carpenter received bids for the 2002 MPP program in February. J&G Pipe had the lowest bid in the northern part of the Mississippi Delta, and Lynn Welding had the lowest in the southern part. Both businesses were selected as fabricators for the 2002 MPP program.

PLB Woodson worked on several MPP projects with private land owners throughout the spring and summer. Unfortunately, there was not enough resources and funding available to complete all requested projects during the fiscal year. All completed project locations were entered into an ArcView database.

PLB Woodson, MMP State Coordinator, attended a MPP Group meeting in Jackson, MS at the end of May to approve 2002 projects and determine Partner contributions (Table 1). During the meeting, the Group voted to work with Gary Young, US Forest Service, to deliver a tree planting option through the MPP. The Forest Service has a program that is similar to the Service's Regional Partners for Fish and Wildlife program, and they are wanting to deliver it through the MPP Group. Funding and the implementation are coordinated through the Forest Service, MS Forestry Commission, and Ducks Unlimited. The Group agreed to deliver the Forest Service program as long as they were only a means of getting landowners signed up and did not have to do the project planning and implementing. FWS members of the MPP Group will probably not utilize the Forest Service Program since our own Regional Partners for Fish and Wildlife program takes priority.

Table 1. 2002 Mississippi Partners Project Contributions

AGENCY	CONTRIBUTION	TYPE	DESCRIPTION
USFWS	\$40,000	Cash / Completed Projects	Paid for 22" and 30" steel pipe and riser fabrication.
MS Dept. of Wildlife, Fisheries, and Parks	\$40,000	Cash	Paid for 22" steel pipe and riser fabrication.
Ducks Unlimited	\$40,000	Cash / Completed Projects	Paid for 22" steel pipe and riser fabrication.

Delta Wildlife, Inc.	\$40,000	Cash / Completed Projects	Paid for 30" steel pipe and riser fabrication.
MS Fish and Wildlife Foundation	\$40,000	Cash / Completed Projects	Paid for 20" and 22" steel pipe and riser fabrication.
TOTAL	\$200,000		

PLB Woodson wrote a Challenge Cost Share Agreement between the FWS and Delta Wildlife, Inc., to hold the Service's \$40,000 in MPP funds for 2002. The Challenge Cost share money was not in place with Delta Wildlife, Inc. until late September delaying the completion of both Group and FWS Projects until the end of October.

In October, PLB Woodson reviewed winter 2001-2002 MMP satellite imagery information (Table ?) supplied by Ducks Unlimited. The imagery provides a compliance estimate of MPP acreage flooded each year.

Table 2. Winter 2001/2002 MMP Compliance Summary

	November '01	December '01	January '02	February '02	Potential TOTAL
No. of Flooded Impoundments	102 (10.7%)	689 (72.3%)	No Data	718 (75.3%)	953
No. of Flooded Acres	1,242.0 (2.3%)	19,441.1 (36.2%)	No Data	15,682.5 (29.2%)	53,726.9

During the peak seasonal flooding (December '01), a total of 17,318 acres of cropland, 777 acres of moist soil, and 1,346 acres of forest habitat was flooded. Even though flooded impoundment compliance was relatively high (>70%), the flooded acreage compliance appear to be low (<40%). This may be a result of an over estimate of the potential floodable acreage per site in the early years of the program. PLB Woodson supplied Jerry Holden, Ducks Unlimited, Jackson, MS with copies of the 2002 MMP agreements. Maps from the agreements were added to the MPP compliance imagery database. The MPP program cooperatively worked with 53 private landowners on 131 sites during the summer of FY 2002, supplying a total of 165 water control structures to create an additional 4,236 acres of seasonally flooded wetland habitat. U.S. Fish and Wildlife Service biologists were responsible for 1,765 acres of the total seasonally flooded wetland habitat created. In kind assistance by land owners, transportation and installation of water control structures was estimated at \$49,500.

Regional Partners for Fish and Wildlife (PFW)

The Regional Partners for Fish and Wildlife (PFW) program provides technical assistance and habitat improvement/restoration cost sharing for private landowners. Restoration efforts undertaken by PFW in the Mississippi Delta are primarily bottomland hardwood reforestation and the restoration of natural hydrology. PFW will provide a landowner up to \$10,000 in assistance in one year in exchange for the placement of a 25 to 30 year conservation easement on the restoration site. Landowners who have potential PFW projects located within Migratory Bird or T&E Species Zones, adjacent to federal or state protected lands, or which provide wildlife corridors are shown preference. PFW projects are frequently partnered with USDA conservation programs such as the Wetlands Reserve Program (WRP) and the Conservation Reserve Program (CRP).

PLB Carpenter supervised the reforestation of 100 acres on the Australia Island PFW site in Madison Parish, LA in January. A mixture of oaks and light seeded tree species were hand planted on a 12 x12 spacing by Richard Williams.

PLB Woodson attended the Annual Partners for Fish and Wildlife Meeting in North Carolina, June 10-14, 2002.

PLB Woodson assisted Ecological Services Biologist Calvin Lunceford, Jackson, MS FWS Office, with surveying a Partners site near Lake Providence, LA the first week of August.

PLB Woodson and EO Haze Brown repaired and raised three levees at the Dinkins PFW site. Dirt work on the site had been originally performed in 2001. Two levees had low areas that prevented full flooding of the impoundments. The third levee, created with a levee plow, was designed to separate a moist soil area from a green tree reservoir, but was not high enough to provide independent flooding of the two impoundments. Woodson and Brown also replaced a water control structure while at the Dinkins site. The original structure had a hole in it, contributing to the levee washing out around the pipe. After the repairs were made, the Dinkins PFW site did an excellent job at holding water for wintering waterfowl (Figure 8).



Fig. 8. Dinkins PFW site flooded for waterfowl during the 2002-2003 winter. 02/02 TC

PLB Woodson began to make arrangements to plant trees on the Dinkins PFW site during the 2002-2003 planting season, but landowner Cameron Dinkins enrolled the site in Continuous CRP, making it the responsibility of USDA and the landowner to plant the trees instead. Woodson still assisted Dinkins in arranging the tree planting.

PLB Woodson met with Wade Creekmore and toured the Australia Island PFW site in July. The project levee broke through, and plans were made to make repairs and install a second water control structure. More water passed through the project area than first anticipated. Woodson and EO Brown repaired the levee, added the second structure, and created a second spillway in August.

Creekmore informed Woodson the repaired project levee did not "blow out", and the site held water all the following winter.

In August, PLB Woodson gathered FY 2002 PFW accomplishment narrative information and submitted it to Don Seay, State Coordinator, Jackson, MS FWS ES Office.

PLB Woodson entered habitat, financial, and technical assistance PFW information for FY 2002 in the HABITATS database in September.

PLB Woodson sent the Cooperative Agreement and Section 7 Evaluation for the Australia Island PFW Project to Ronnie Haynes in Atlanta, GA in October.

PLB Woodson discussed in detail a potential PFW project in northern Washington County with private landowner Cameron Dinkins. Woodson then met with Ronnie Hudspeth and Kevin Nelms, (NRCS), and discussed possible enrollment of the 88 acre site into a 30 year WRP Easement. Woodson later used acreage and cost estimates obtained from Hudspeth and Nelms to write a PFW Private Lands Project Proposal submission for the Dinkins Washington County Site. The purpose of the project was to work in conjunction with the landowner to reforest 60 acres of cropland on the site to meet the landowner's 25% cost share requirement in the 30 year WRP. Dinkins has agreed to reforest the site and work with MPP to restore the hydrology if the WRP application is not accepted. The site will be reviewed by a WRP ranking committee in 2003 and will more than likely be accepted.

PLB Woodson attended the Private Lands Committee PFW project proposal ranking/selection meeting on Dec. 11 at Bayou Cocodrie NWR, Ferriday, Louisiana. The group approved the \$6,600 requested for the Dinkins Washington County project proposal (see above). The Washington County NRCS office was notified of the project approval. FWS assistance on the site will increase Dinkins WRP ranking score.

USDA Programs

The Central Mississippi Refuges Complex provides both technical and operational support to the Wetlands Reserve Program (WRP) and the Conservation Reserve Program (CRP). Annually the Complex PLB serves on a NRCS team to rank WRP applications throughout the Mississippi Delta. The team consists of a forester, hydrologist, hydrologist technician, and a wildlife biologist, with a FWS PLB serving as the ranking team biologist.

In May, PLB Woodson met with many of the District Conservationists (DCs) assigned to the NRCS field offices in the southern half of the Mississippi Delta. Woodson will be working closely with the DCs on WRP and CRP projects.

PLBs Carpenter and Woodson spent a considerable amount of time during 2002 meeting with landowners explaining WRP and CRP options in addition to explaining the PFW program. WRP and CRP technical assistance was provided to 12 landowners on a total of 726 acres in the Mississippi Delta. Of those sites, 70 acres were adjacent to Yazoo NWR, 29 acres were adjacent to Panther Swamp NWR, and 40 acres adjacent to the Brown FmHA tract. Another interesting note was CRP technical assistance was provided to the Biles family on the Smedes Plantation located in southern Sharkey County. The Smedes Plantation is the site of the famed Teddy Roosevelt bear story, and the Smedes are the grandparents of the Biles.

PLB Woodson spoke with NRCS DC Phillip Crosby about possibly rehabilitating the watershed lake upstream from the Chicopa Creek drainage which is flooding and dumping high amounts of silt on Morgan Brake NWR. Woodson discovered that there are three watershed lakes on the Chicopa Creek drainage that effect the Refuge. Woodson later met with Reginal Spears and James Johnson, NRCS, to discuss watershed lake rehabilitation along the Chicopa Creek drainage. Rehabilitation of the Chicopa Creek watershed lakes is tentatively going to take place in two stages. The first and immediate stage is to repairs holes in the dams and repair the emergency spillways. The lakes are approximately 40 years old and have not yet reached their silt capacity. The idea is to make the repairs needed to ensure the lakes can reach there silt capacity which is expected to occur in

approximately 10 years. The second and later stage is to possibly dip the silt out of the lakes adding another 40-50 years to their function. [After further discussion, all agreed that the majority of the current silt loading Morgan Brake NWR is receiving from the Chicopa Creek drainage is probably not coming from the existing watershed lakes since they are still functioning fairly well.] The silt loading will get worse over time though, once these lakes reach their carrying capacity if they are not dipped out. The current silt loading on Morgan Brake is coming from several unknown sources and NRCS has agreed to work with Woodson to determine where these sources are and explore options on what can be done to reduce the siltation problems.

PLB Woodson participated on the 2002 WRP ranking team in Washington and Humphreys Counties in October.

Other Private Lands Activities

PLB Woodson met with Mrs. Brown, Mayor of Tchula, MS and discussed the city receiving a grant from the U.S. Army Corp of Engineers for a feasibility study to restore Tchula Lake. Mayor Brown hope to enhance the local economy by increasing outdoor recreation opportunities. Improvements to the water quality of Tchula Lake directly benefit the quality of the water flowing from it into Morgan Brake NWR. Mayor Brown and Woodson planned a meeting with the U.S. Army Corp of Engineers, NRCS, and the FWS in January, 2003 to discuss the feasibility study and to determine how much of the 41 mile long Tchula Lake should be rehabilitated. Woodson later obtained property ownership maps for the lands surrounding Tchula Lake. If the lake is rehabilitated, Private Lands can play a role in protecting it.

16. Other Easements

NTR

G. WILDLIFE

1. Wildlife Diversity

Habitat diversity was created by piling whole trees in a back corner of the Cope wildlife opening during March. The trees were available from a road-widening project on Bear Garden Road.

2. Endangered and/or Threatened Species

PLB Woodson assisted Walt Hodge, University of Tennessee Field Technician, and Brad Young, MS Museum of Natural Science Bear Biologist, with bear traps on Big Island, AR. While assisting Hodge and Young, one 150 lb young adult male was captured and tagged. The purpose of trapping was to tag all bears caught and place radio collars on all females. The females will hopefully be found the coming winter and moved to Felsenthal NWR. The purpose of Woodson assisting was to gain experience in bear trapping since Mississippi is a possible state for future bear relocations. Several agencies/organizations, which included USDA Wildlife Services, USDA Forest Service, USDI Fish and Wildlife Service, AR Game and Fish, MS Dept. of Wildlife Fisheries and Parks, and Delta Wildlife, Inc., assisted with the bear trapping.



Fig. 9. Young 150 lb black bear captured on Big Island during University of Tennessee trapping efforts. 07/02 CW



Fig. 10. University of Tennessee Field Technician Walt Hodge ear tagging captured black bear. 07/02 CW

3. Waterfowl

In January, Yazoo Refuge hosted a phenomenal number of wintering waterfowl. Ducks spent their days in the swamp (Swan Lake), as usual, and in the evenings moved into impoundments to feed, primarily in standing rice on the north end of the refuge, and also in flooded corn in various areas. At a time when hunters across the state were asking, "Where are all the ducks?", we counted approximately 185,000 ducks. Even on the refuge there was relatively little use of smaller impoundments during the day. Use was definitely concentrated in areas containing "hot foods" at night, and then it was back to the swamp during the day. Moist-soil areas such as the Cox Ponds received consistent use, but not in the same large numbers.

Corresponding airplane surveys by the State of Mississippi indicated the inadequacy of this survey method in forested or shrub swamp. While we were seeing 140,000 mallards, primarily coming out of the swamp, State personnel counted 1,600 on the refuge.

After the rice was consumed, ducks and geese began concentrating on corn. Snow geese seemed to be more numerous than last year. Estimates were 170,000 snow geese in the vicinity of the refuge at the time of the mid-winter waterfowl survey (January 8). Soon after that they moved into flooded corn in the Herman Impoundment and Steele Bayou I Impoundment as well as dry fields.

Refuge staff and other FWS personnel worked hard to discourage snow goose use on the refuge and to reduce goose numbers. Five hundred thirty-one snow geese were harvested during January and 18 in February. Geese were displaced from fields ca. 30 times throughout the winter.

Smith participated in the mid-winter waterfowl count in early January, and counted 157,000 ducks on the north side of the refuge.

A waterfowl survey was conducted on February 13 by the refuge staff. Mallards were the most numerous species, followed by snow geese and gadwalls.

Waterfowl which usually have moved north in February were present on the refuge until usually maybe midnight late. Over 2000 mallards were seen at one point in mid-March. Snow geese and white-fronted geese remained until at least March 20.

Blue-winged teal were present throughout April, but in relatively low numbers compared to previous years. Gadwalls and shovelers stayed unusually long this year, at least through mid-April.

All wood duck boxes were checked in April with the help of volunteer Bart Barrack.

About 300 blue-winged teal used the Cox Ponds throughout September. Pool 1 was flooded all month and the early crop of wild millet on the bottom attracted the teal as well as about 120 wood ducks.

Large numbers of dabbling ducks, snow geese, and white-fronted geese used the standing rice crop in the Pryor Impoundment extensively during November. Unfortunately, the blackbirds used it also and inflicted heavy casualties on the crop.

Pool 13, which had a heavy crop of *Sagittaria* (duck potato) this year, was used extensively by mallards and geese, especially at night. The Cox Ponds in general hosted a wide variety of dabbling and diving ducks. There seemed to be an increased number of pintails over last year. On the waterfowl survey of November 25, a pair of redheads was seen among the ringnecks, scaup, and bufflehead.

A late afternoon-evening waterfowl survey was conducted on December 17. The survey counted ducks moving from daytime loafing areas to evening-night feeding sites. Six persons were involved, and over 77,000 ducks were counted. This seems to be the best way to count the ducks that stay in the swamp throughout the day.

ANNUAL NARRATIVE REPORT FORM
WOOD DUCK BOX PROGRAM INFORMATION

REFUGE: Yazoo
NESTING YEAR: 2002

PERCENT

NUMBER

Total usable boxes

229

Estimated boxes used by wood ducks

200

87%

Estimated boxes used by hooded mergansers

86

Estimated boxes used by other wildlife

5-10

Estimated wood duck broods produced

183

Estimated total wood ducks hatched

1645

Estimated wood ducks surviving to flight stage

493

30%

Plans for next year (indicated number):

 more boxes

 fewer boxes

 X no change

4. Marsh and Water Birds

The weather was so mild in general that we had an unusual number of wading birds overwintering. Several great egrets and white ibis were present through January.

Annual surveys of colonial waterbird rookeries were conducted in Swan Lake and the Cope Impoundment. The Swan Lake rookery remained diverse and thriving. The cormorant nesting population nearly tripled with about 20 nests.

White ibis peaked at the Cox Ponds (mostly Pool 5) at 267 on August 19. At least half of these birds were adults; whereas, in the past, almost all birds seen at this time of year were subadult.

Three roseate spoonbills were seen on September 4 in Pool 5. A dark ibis, up to three of which have been seen on a regular basis over the past few years, was seen in Pool 5 also. The regularity of occurrence of dark ibis in spring as well as summer may indicate local nesting. The huge white ibis rookery adjacent to Panther Swamp NWR would be a good candidate for nesting dark ibis and also spoonbills.

Tri-colored herons, which have nested in very limited numbers in Swan Lake over the past few years, were present at Deer Lake and the Cox Ponds throughout November. As many as 13 were counted at the Ponds. Although this is an area where post-nesting dispersal occurs from more coastal rookeries, it seems likely that these may be local birds.

Ten dark ibis, another primarily coastal species, used the Cox Ponds in November. This is a record number for the refuge. About 80 white ibis, all juveniles, were also present.

A dark ibis was still using the Cox Ponds in mid-December.

5. Shorebirds, Gulls, Terns and Allied Species

Two of the Cox Ponds drained for millet production were used in March by a few greater and lesser yellowlegs, killdeer, snipe, and about 80 least sandpipers. The greater yellowlegs was an uncommon visitor last fall until very late in the season. As an early spring and late fall migrant, we do not see very many.

Four shorebird surveys were conducted in July, all at Pool 10. Killdeer and least sandpipers dominated the lists, with a good showing by pectoral sandpipers late in the month.

Four shorebird surveys were conducted in August at the Cox Ponds.

Shorebird numbers were high in early September with a record number of least sandpipers (1047) recorded. Lesser yellowlegs were also numerous at 144. Two avocets used the ponds for a period of at least two weeks. Avocets had not been recorded here in several years. Weather events moved many of our shorebirds through by mid-month, and rainwater covered mudflats by the end of the month, making the habitat largely unsuitable for small peeps.

6. Raptors

Red-tailed hawks were especially plentiful in February. Eight red-tails were seen in one trip along the refuge drive on February 27. One was totally melanistic.

7. Other Migratory Birds

In February, PLB Carpenter and RB Linden participated in Wildlife Services double-crested cormorant counts on Lake Washington and Swan Lake. No cormorants were counted on Lake Washington, and approximately 7500 birds were on the refuge.

The passerine nest box program consisted of thirty-six bluebird-sized boxes erected in various habitats. Most boxes were in Prothonotary warbler habitat in sloughs and swamps, with the rest in bluebird habitat around the refuge compound and residences. Boxes were checked approximately every 10 days and eggs, nestlings, and adults present were recorded.

Four passerine species used 36 of 36 nest boxes with 68 nests (at least one egg) and 163 young fledged. Compared to last year, Prothonotary warbler and chickadee nests were down 22% and 40%, respectively, while bluebirds and Carolina wrens increased by 116% and 166%, respectively.

<u>Species</u>	<u>Nest Attempts</u>	<u>Fledged Young</u>
Prothonotary warbler	36	121
Carolina wren	16	67
Eastern bluebird	13	33
Carolina chickadee	3	13

During the month of September, a Bewick's wren was seen on two occasions in the birdbath at the Biologist's residence.

8. Game Mammals

Yearling buck weights are down by about 12 pounds from the average (before the State's four-point rule was put into effect). In general, deer seem to be underdeveloped by a year or so compared to the pre-four-point rule weights and antler measurements. Yes, there are a lot more 2 ½-year-old and older bucks in the herd (71% of all males taken), but as a rule, they are underweight with poor antler development. A number of factors may be working to maintain an underdeveloped state in the deer herd including an artificial selection in favor of underdeveloped bucks (the four-point rule), possibly with a genetic consequence, and competition due to a high population of older (but inferior) bucks. The four-point rule also decreases the doe harvest because hunters not only have more bucks to shoot at, but they may be reluctant to shoot a doe because they are afraid it might be a spike (a common mis-identification). Whatever the mechanism, we now have a deer herd that has become trashy as a result of the four-point rule. The age structure is way out of line, and it looks as though we might have to increase hunting to deal with the elevated population.

The sex ratio for the 2002-03 harvest was 56% bucks, 44% does.

Total deer harvested was 229, which is a record high. The previous record was 210 in 1991, and most annual harvests were much lower.



Fig. 11. Since the State's 4-point rule came into effect, we have been seeing increasing numbers of inferior bucks, such as this 2.5-year-old 5-point.
12-01-02 DRL



Fig. 12. Fortunately, the altered harvest strategy has not yet affected all deer.
12-01-02 DRL

9. Marine Mammals

NTR

10. Other Resident Wildlife

NTR

11. Fisheries Resource

NTR

12. Wildlife Propagation and Stocking

NTR

13. Surplus Animal Disposal

NTR

14. Scientific Collections

NTR

15. Animal Control

NTR

16. Marking and Banding

More than 60 AHY-F wood ducks were banded out of nest box traps during the latter half of April.

Thirty-two wood ducks were banded the last three days in August

We have had no luck attracting wood ducks to bait in September. The 32 ducks we banded at the end of August were the last. Bait was kept out at the Deer Lake banding site all summer, and in years past, conditions would have yielded some ducks out of bait traps or even a rocket net shot. Bait was also placed in Pool 1 at the Cox Ponds where wood ducks and teal were using, but after more than a week at the end of the season, the bait had not been disturbed.

17. Disease Prevention and Control

NTR

18. Other

NTR

H. PUBLIC USE

1. General

NTR

2. Outdoor Classrooms - Students

NTR

3. Outdoor Classrooms - Teachers

NTR

4. Interpretive Foot Trails

NTR

5. Interpretive Tour Routes

NTR

6. Interpretive Exhibits/Demonstrations

Central MS Refuges staff worked the US Fish and Wildlife booth at the Mississippi Wildlife Extravaganza in Jackson, MS, Friday, August 2nd.

Central MS Refuges staff worked the FWS booths at The Great Delta Bear Affair in Rolling Fork on Saturday, October 19.

Central MS Refuges staff worked the FWS booth at the Delta Wildlife Expo in Greenville on October 31-November 2.

7. Other Interpretive Programs

A power point presentation was given to nine members of a garden club in Yazoo City by David Linden. The program covered the NWR System and the local refuges.

PLB Woodson was contacted by Dr. Charlie Nilon, University of Missouri, and agreed to be interviewed by phone or email by undergraduate students regarding experience in the natural resources profession as part of a class assignment for Dr. Nilon's students.

In April, PL Wilkins presented a program regarding his occupation to 126 students and 5 teachers at Riverside School in Avon, Mississippi during the school's 2002 Career Day.

8. Hunting

Rabbit hunting was minimal on the refuge as it has been ever since the Farmer's Home properties, with their extensive oldfield habitat, were opened to hunting. On the refuge, 36 hunters harvested 61 rabbits.

Squirrel hunting in February was slow, although some hunters managed to limit-out. The popularity of this spring hunting is increasing slightly as more people learn about it. Forty-three hunter visits were reported in at an average of 2.6 squirrels per visit.

The raccoon hunt was very successful compared to the past few years. Forty-one hunters reported taking 119 raccoons in three nights of hunting.

The special goose hunt continued in February with 10 hunters bagging 18 geese.

The first month of archery season started slowly with only 19 deer harvested in October, excluding four road kills. The number last year was 41 and one road kill. Mosquitoes were horrendous after all the rain we had, and the threat of West Nile Virus may have discouraged participation to some extent.

Squirrel hunting success, on the other hand, more than doubled from last October with 3.4 squirrels per visit. This was the highest success rate we have had since 1993 (4.1). Hunter visits also increased 360% over last year, probably because of the increased success rate.

The two-day Youth Hunt (gun hunt for deer) was very successful this year due to the density of deer and, for a change, good weather. Forty-nine deer were taken, compared to an average of 18 for the past 10 years. Only twice (1983 and 1986) has this level been surpassed.

The mosquito population, along with the general threat of West Nile Virus, made the first archery hunt a tough one. Despite the diminished visitation, 45 deer were taken.

The Muzzleloader Hunts and the Senior Citizen Hunt were concluded in December. Seventy-two deer were taken during the three two-day muzzleloader hunts. Senior Citizens did not do as well, largely due to the weather. Only 5 deer were killed and retrieved in two days.

Hunter visitation was extremely high on the January archery hunt (1431 visits during the 15-day hunt), second only to the 1999-2000 season (1549 visits). The first three days of the hunt were very over-crowded. Hunter success was high this year at one deer per 27.5 visits compared to one per 40.8 visits in 1999-2000.

9. Fishing

NTR

10. Trapping

NTR

11. Wildlife Observation

NTR

12. Other Wildlife Oriented Recreation

NTR

13. Camping

NTR

14. Picnicking

NTR

15. Off-Road Vehicling

NTR

16. Other Non-Wildlife Oriented Recreation

NTR

17. Law Enforcement

Law Enforcement (LE) Officer Claude Carnathan worked on each refuge in the Complex during peak periods and then concentrated his efforts on specific problems within the complex.

The Yazoo Complex continues to grow in size. There are currently five major refuges, containing 79,331 acres and spanning over 90 air miles. We also have 33 FmHA tracts that have been transferred to us fee title containing another 9,555 acres and 208 acres in easements. Private lands and partners projects that we oversee add another 36,000 acres. This gives the Yazoo Complex a total of 125,097 acres in nine different counties. This growth has occurred without an increase in law enforcement staff. The Complex is operating with one full-time officer, seven collateral officers and this year we wired two seasonal law enforcement officers. It is impossible to maintain adequate law enforcement presence on all of this property with the limited law enforcement manpower available.

This year, hunting began with archery deer and waterfowl on January 1 and ended with archery deer on December 31. It was open for turkeys March 24th through May 1st. This represents two hundred sixteen hunting days per year. We also have fishing on four refuges in the Complex. Several of the hunts are open on four of the Refuges simultaneously.

It was physically impossible to provide adequate law enforcement on the five major refuges plus FmHa home tracts within the complex given our understaffed LE cadre. Another problem were that hunting clubs joining these lands often trespass and do as they please, and some are not observant of refuge regulations or even state law in many cases.

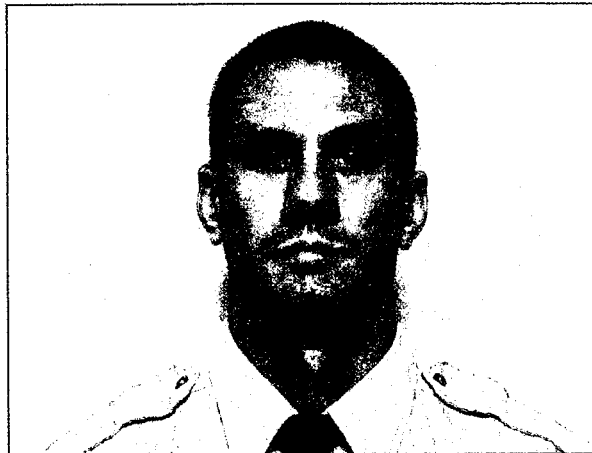


Fig. 13. Seasonal Law Enforcement Officer Corey Weed
11/2002 CWC

Hiring seasonal law enforcement officers was a tremendous headache. Only one seasonal law enforcement officer position was funded for the 2002 hunting season. Corey Weed was hired and did an outstanding job.

The Law Enforcement Incident Reporting (LEIR) database was developed by RO Carnathan and continues to take a lot of his time. LEIR was approved and chartered by the Service in 1996, and its use was required by the end of FY97. RO Carnathan trained Lead Support People (LSPs) for each Region to reduce the time he spend providing technical support for the database. Even with this, a large part of his time was spent providing technical support and updates for the database.

All of the Complex's law enforcement staff attended LE training in Tallahassee, FL.

RO Carnathan's Details:

Homeland Security Detail Shasta Damn (CA) February 1-16, 2002

In-Service, Tallahassee, FL

February 24-March 8, 2002

RO Carnathan received the Regional Director's Award in appreciation of his outstanding law enforcement efforts in protecting our country.

Ninty-one violations were entered into LEIR for the Complex during 2002. Of these 91 cases, 72 violation notices were issued, 19 were warnings, and 13 of these citations were written off the refuge.

There were 7 citations written off the complex. Some were written while working within the Complex area during dove season. Others were written while working our FmHA tracts.

CITATIONS OFF REFUGE

VIOLATION	NUMBER ISSUED
Take MBTA*/With in Violation of Tagging Requirements	2
Take MBTA*/With an Unsigned Fed. Duck Stamp	1
Take MBTA*/Without a Fed. Duck Stamp	1
Take MBTA*/Without a State Duck Stamp	1
Take MBTA*/Will Possessing Toxic Shot	1
Take MBTA*/With an Unplugged Shotgun	1
TOTALS	7

*Migratory Bird Treaty Act

There were 9 violations written in 6 different categories.

VIOLATIONS ON YAZOO NWR FOR 2002

VIOLATION	NUMBER ISSUED
Hunting During Closed Season	3
Hunting Small Game While Possessing Toxic Shot	2
Hunting Without a Refuge Permit	1
Blocking a Refuge Road	1
Deer Hunting W/O Required Hunter Orange	1

Transporting an Un-cased Gun	1
TOTALS	9

Smith gave testimony in Washington County Justice Court about the December 28, 2001 spotlighting incident on the refuge. The driver was convicted of spotlighting and hunting from a public road and will lose his hunting license for three years. Charges against the passenger were dismissed.

Due to reports of illegal trespass and hunting on the west side of the refuge near the sand pit, Smith and Yelverton patrolled the area heavily in early January. Yelverton finally found two men with a dead deer, which was illegally shot with a rifle. The men claimed that they did not know they were on the refuge, but they had walked by the clearly marked boundary.

In January, Smith and Carpenter visited several FmHA properties and found many cases of trespass and illegal dumping of trash. Efforts are underway to investigate these activities.

18. Cooperating Associations

NTR

19. Concessions

NTR

I. EQUIPMENT AND FACILITIES

1. New Construction

During the month of January, maintenance staff continued to work on the new shop interior. The drywall has been finished, and painting is near completion. Plumbing contractors should finish early in February.

Construction began on two new facilities for wildlife observation. A boardwalk and observation platform was built to overlook Lizard Lake in an area closed to hunting. The boardwalk trail and tower are universally accessible.



Fig. 14. Drill stem and angle iron were used to support the new boardwalk leading to the Lizard Lake Tower. 8-23-02 DRL



Fig. 15. The ramp to the observation platform at Lizard Lake started on a ridge and sloped up gradually, eliminating the need for steps. 8-23-02 DRL



Fig. 16. Steel pilings were driven by Washington County to support both new observation platforms, this one at Alligator Pond.
DRL

2. Rehabilitation

NTR

3. Major Maintenance

Cannon Chevrolet in Greenwood, MS replaced the rear brake pads, turned the rear brake rotors, replaced the rear shocks, and cleaned the throttle body on the FWS 2000 Chevy 4x4 truck. PLB Woodson obtained a copy of the truck's service history since the truck has had frequent problems with the rear brakes.

PLB Woodson replaced the passenger compartment air filters and air conditioning blower resistor after the blower stopped working in the Service Private Lands truck. The new resistor immediately burned out after being replaced. The truck was taken to Yazoo Motor Co., Yazoo City, MS where a new blower motor and resistor was installed, correcting the problem.

4. Equipment Utilization and Replacement

In February, surplus office furniture from North Mississippi Refuges was picked-up and taken to the Morgan Brake and Panther Swamp offices by PLB Carpenter.

A new winch/bumper and tool box were installed on the new private lands vehicle driven by Carpenter.

5. Communications Systems

PLB Woodson assisted with the set up of the new phone system and moved the web ramp at the Morgan Brake NWR office.

PLB Woodson received a surplus cellular telephone from LE Officer Bubber Carnathan to assist with the coordination of Private Lands activities. A hands-free cell phone kit was later installed in the Private Lands truck by Leflore Communications, Greenwood, MS.

6. Computer Systems

PLB Woodson obtained a new Dell Latitude laptop computer for private lands activities.

Central MS Refuge staff completed IT Security Awareness training.

PLB Woodson received and installed 1 m resolution imagery for the lower portion (south of Hwy 82) of the Delta region in the State of Mississippi from Dale Yokum, Joint Ventures, Vicksburg.

7. Energy Conservation

NTR

8. Other

PLB Woodson had J & G Pipe in Ruleville, MS fabricate a 48" wide x 24" deep x 42" tall riser for a 30' long 30" pipe. The water control structure was paid for by and installed on the Yazoo NWR.

J. OTHER ITEMS

1. Cooperative Programs

NTR

2. Other Economic Uses

NTR

3. Items of Interest

NTR

4. Credits

Photography - David Linden

Compilation and distribution by Yazoo staff.

PANTHER SWAMP NATIONAL WILDLIFE REFUGE

Yazoo City, Mississippi

ANNUAL NARRATIVE REPORT

Calendar Year 2002

**U.S. Department of the Interior
Fish and Wildlife Service
National Wildlife Refuge System**

INTRODUCTION

Panther Swamp National Wildlife Refuge is located in west central Mississippi within the Mississippi/Yazoo River alluvial plain. The refuge was established in 1978 with the initial purchase of the 12,022 acre Curran tract from The Nature Conservancy. The refuge is four miles east of Holly Bluff, Mississippi, and about four miles southwest of Yazoo City, Mississippi.

The refuge occupies approximately 38,601 acres in the Yazoo Backwater Area along the Will M. Whittington auxiliary channel in Yazoo County between Lake George and the Yazoo River. Refuge habitat types are dominated by bottomland hardwood forest interspersed with sloughs, intermittent drains and shallow depressions which are characterized by cypress, tupelo gum, buttonbush, water elm, swamp privet and willow. The major forest species include cottonwood, willow and sycamore along stream banks; sweetgum, green ash, sugarberry, American elm and Nuttall oak on the intermediate flats; willow oak and water oak on the ridges and overcup oak and bitter pecan on the low lying flats. A breakdown of land types includes 5,321 acres of wetlands, 11,732 acres of croplands, 705 acres of grasslands, 19,991 acres of hardwood forests and 252 acres of administrative areas.

Refuge wetlands are known for large numbers of wintering waterfowl. Mallard, wood duck, widgeon, pintail, green-winged teal and gadwall are the most common species of migratory waterfowl present. Many species of songbirds, raptors, marsh and shorebirds are also present on the refuge.

Mammalian species on the refuge include white-tailed deer, fox and gray squirrel, swamp and cottontail rabbit, Eastern red fox, gray fox, coyote, beaver, nutria, spotted and striped skunk, mink, otter, weasel, raccoon, opossum and bobcat. Some small mammals present are flying squirrel, common mole, short-tailed and least shrew, eastern chipmunk, various bats, cotton rat, eastern wood rat, cotton mouse and harvest mouse.

The American alligator exists on the refuge along with other reptilian species. The refuge is noted for its many cottonmouth snakes.

Sloughs, streams, beaver impoundments and other refuge wetlands provide a limited amount of fish habitat except during high water periods when concentrations of fish may be high in flooded areas. Species of fish present include those common to the Mississippi and Yazoo rivers.

A. HIGHLIGHTS 1B. CLIMATIC CONDITIONS 2C. LAND ACQUISITION

- 1. Fee Title Nothing to Report
- 2. Easements Nothing to Report
- 3. Other 3

D. PLANNING

- 1. Master Plan Nothing to Report
- 2. Management Plan Nothing to Report
- 3. Public Participation Nothing to Report
- 4. Compliance with Environmental Mandates 3
- 5. Research and Investigations Nothing to Report
- 6. Other 4

E. ADMINISTRATION

- 1. Personnel 4
- 2. Youth Programs Nothing to Report
- 3. Other Manpower Programs Nothing to Report
- 4. Volunteer Programs Nothing to Report
- 5. Funding 4
- 6. Safety 4
- 7. Technical Assistance Nothing to Report
- 8. Other Items 5

F. HABITAT MANAGEMENT

- 1. General Nothing to Report
- 2. Wetlands 5
- 3. Forests 6
- 4. Croplands 10
- 5. Grasslands 11
- 6. Other Habitats Nothing to Report
- 7. Grazing Nothing to Report
- 8. Haying Nothing to Report
- 9. Fire Management 12
- 10. Pest Control Nothing to Report
- 11. Water Rights Nothing to Report
- 12. Wilderness and Special Areas Nothing to Report
- 13. WPA Easement Monitoring Nothing to Report
- 14. Farmers Home Administration Lands Nothing to Report
- 15. Private Lands Nothing to Report
- 16. Other Easements Nothing to Report

G. WILDLIFE

1. Wildlife Diversity	Nothing to Report
2. Endangered and/or Threatened Species	Nothing to Report
3. Waterfowl	13
4. Marsh and Water Birds	13
5. Shorebirds, Gulls, Terns & Allied Species	Nothing to Report
6. Raptors	14
7. Other Migratory Birds	Nothing to Report
8. Game Mammals	Nothing to Report
9. Marine Mammals	Nothing to Report
10. Other Resident Wildlife	Nothing to Report
11. Fisheries Resources	Nothing to Report
12. Wildlife Propagation and Stocking	Nothing to Report
13. Surplus Animal Disposal	Nothing to Report
14. Scientific Collections	Nothing to Report
15. Animal Control	Nothing to Report
16. Marking and Banding	Nothing to Report
17. Disease Prevention and Control	Nothing to Report
18. Other	Nothing to Report

H. PUBLIC USE

1. General	Nothing to Report
2. Outdoor Classrooms - Students	Nothing to Report
3. Outdoor Classrooms - Teachers	Nothing to Report
4. Interpretive Foot Trails	Nothing to Report
5. Interpretive Tour Routes	Nothing to Report
6. Interpretive Exhibits/Demonstrations	Nothing to Report
7. Other Interpretive Programs	15
8. Hunting	15
9. Fishing	18
10. Trapping	Nothing to Report
11. Wildlife Observation	Nothing to Report
12. Other Wildlife Oriented Recreation	Nothing to Report
13. Camping	Nothing to Report
14. Picnicking	Nothing to Report
15. Off-Road Vehicling	Nothing to Report
16. Other Non-Wildlife Oriented Recreation	Nothing to Report
17. Law Enforcement	19
18. Cooperating Associations	Nothing to Report
19. Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction	21
2. Rehabilitation	22
3. Major Maintenance	25
4. Equipment Utilization and Replacement	26
5. Communications Systems	Nothing to Report
6. Computer Systems	27

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7. Energy Conservation	Nothing to Report
8. Other	27

J. OTHER ITEMS

1. Cooperative Programs	28
2. Other Economic Uses	Nothing to Report
3. Items of Interest	Nothing to Report
4. Credits	28

A. HIGHLIGHTS

On January 16, Stevens met with Fishery Biologist Dennis Riecke and Fisheries Coordinator Bubba Hubbard of the Mississippi Department of Wildlife, Fisheries and Parks. The two were given tour of the proposed Lake George Project site and the proposed boat ramp site on Wade Bayou.

J. King, Wilkins, and Stevens attended a meeting at the Lake George State Wildlife Management headquarters on the west levee on Thursday February 28th at 10:00 p.m. COE, MSDWF&P, and USFWS personnel were present. The meeting was about current management on the Lake George Area.

Durham and Manzo spent the first week of March investigating a theft of two of the refuges ATVs. Most of the time was spent with the Sharkey County Sheriff's office, Yazoo County Sheriff's office, Forest Service investigators, and MSDWFP law enforcement personnel.

In September, Stevens attended a COE meeting in Vicksburg with Wilkins. Work efforts at Big Twist were discussed. Joe Cook and Johnny Kaiser with the COE were present. Wilkins and Stevens met the next week with Cook, Kaiser and a COE engineer at the Landside Ditch Weir for discussions about that issue.

The official rainfall total for the month of September equaled 8.82 inches. Most of the rainfall came as a result of tropical storm Isidore.

Biologist David Linden gave a talk to the Yazoo Garden Club on September 25 at the request of Stevens. Laura King was originally scheduled to make the presentation but was out of town. Thanks, David!

The official rainfall total for the month of October was 9.09 inches as Hurricane Lili hit the refuge.

The Panther staff worked the Bear Affair in Rolling Fork on Saturday, October 19.

B. CLIMATIC CONDITIONS

Rainfalls in the area and precipitation along the Mississippi River and its drainages kept the refuge at or near flooding from the first week of January until the end of June. The Mississippi and Yazoo Rivers both crested on June 6 and began a slow fall. The backwater reached an elevation of 90.6 feet on the Lower Twist side of the Refuge in June. Rainfalls of 5.86 inches in July kept the refuge wet for most of that month also.

The official rainfall total for the month of September equaled 8.82 inches. Most of the rainfall came as a result of tropical storm Isidore. The official rainfall total for the month of October was 9.09 inches. Hurricane Lili hit the refuge the first weeks of the month. Luckily, it reduced in strength by two notches before making landfall. Less than two inches of rain accumulated and wind damage was minor during the storm. The other 7 inches of rain fell during the rest of month. Rainfalls from the two back-to-back tropical systems stopped most refuge work for the year. Staff discontinued work on ATV trail repairs behind the office, and loggers quit timber harvest operations after the second system went through.

Table 1. 2002 Monthly Rainfall on Panther Swamp National Wildlife Refuge

Month	Inches
January	5.56
February	3.01
March	8.03
April	2.42
May	5.20
June	2.65
July	5.86
August	2.81
September	8.82
October	9.09
November	5.05
December	6.22
Totals	64.72

C. LAND ACQUISITION

1. Fee Title

NTR

2. Easements

NTR

3. Other

In March, Stevens discussed availability of neighboring properties with Ken Clough, Realty, Jackson. Information on Warwick property and two sixteenth sections was provided.

In July, Stevens met with Filo Coats of Filo Coats Appraisals in Grenada. Mr. Coats appraised the 16th section located in the center of the refuge that the refuge leases. Bid prices changed in Yazoo County this year; a minimum bid of \$8.00/acre was required on all hunting leases. Ken Clough bid on the sixteenth section lease during August, and was able to match and maintain the bid on the section located in the middle of the refuge. The match was in excess of \$25/acre; one sixteenth section in Yazoo County leased for \$52/acre, another for \$48/acre. The price of hunting continues to rise.

D. PLANNING

1. Master Plan

NTR

2. Management Plan

NTR

3. Public Participation

NTR

4. Compliance with Environmental Mandates

In March, Stevens arranged pesticide certification training with the Yazoo County Extension service for Complex staff. Dr. Tim Pepper Extension specialist with the county presented the training and testing. Stevens and Durham, along with staff from Hillside and Yazoo refuges, took Pesticide Certification Training and Testing at the Yazoo County Cooperative Extension Service later that month. All employees passed the test and received certification cards.

Stevens forwarded herbicide price information to Frey at Hillside. The information was obtained from the COE office in Yazoo City.

5. Research and Investigations

NTR

6. Other

Stevens received RONS and MMS updates and instructions from J. King on March 28. In April, Stevens completed work on RONS and MMS packages. He later spent one day at Yazoo Refuge completing the package. Stevens began work on a Plus 100 project for King on May 16.

E. ADMINISTRATION

1. Personnel

1. Travis Carpenter, Refuge Manager, GS-11, PFT, EOD
2. Chris Allen, Biological Science Technician, PFT, GS-07, EOD 6/14/92.
3. Billy Frey, Biological Science Technician, PFT, GS-07, EOD 3/28/99.
4. Unstaffed, Maintenance Worker, PFT, WG-08.

Durham was in Atlanta the week of February 4-9 for a wage grade workshop. Durham and other wage grade employees from the complex attended the workshop.

Durham and Manzo spent the week of February 25 through March 1 at Tallahassee, Florida, attending in-service law enforcement refresher training.

In July, Durham was on duty at Hatchie Refuge assisting with a construction project. He and Haze Brown assisted at the refuge for two weeks.

Panther Swamp staff and Hillside staff held a staff meeting August 9. A safety meeting was also conducted.

2. Youth Programs

NTR

3. Other Manpower Programs

NTR

4. Volunteer Programs

NTR

5. Funding

In June, Stevens prepared RPI road information for David Viker in Atlanta. Information for the Stricklin's Road and Board Road were forwarded to him via E-mail.

6. Safety

Dorris served as the Complex Safety Officer for 2002. The Safety Committee was comprised of Frey, Manzo, Smith and Dorris.

Dorris talked with Brian Hardison on January 31 concerning Frey, Manzo, and Smith and their training needs to become the CDSOs for their respective stations. Hardison thought this was a good idea. Dorris would still serve as a safety coordinator to provide guidance. Each has to complete 30 hours of training via computer using our safety and occupational health CDs. This, however, does

not take the place of the OSHA 600 course requirement that needs to be taken within 6 months after accepting the duties. Managers need approximately the same amount of time on the safety CD and all employees should sit down to 6 hours of training. Hardison said going to the Safety Home Page will show other needed safety programs and training.

Panther Swamp NWR staff held a staff meeting on February 15 with Deputy Project Leader King in attendance. Manzo conducted safety training as part of the meeting. Safety topics included proper replacement of refrigerants and proper hauling of equipment on the Lowboy.

Manzo closed roads at Stricklin's due to rising flood waters in May.

In May, Dorris made a request to Jim Poje in Engineering for \$6,600.00 to perform 6 yr. testing on 3 water wells on the Complex. By year's end, no money had been appropriated. Poje said possibly V.A. Sridhar's office in Denver might come up with some money. We are still on the list whenever money becomes available for this project. Actually, five wells need testing for organics/inorganics and metals across the complex.

Stafford requested PPE for chemical mixing in May. Dorris ordered half-mask respirators, filter cartridges, and aprons for the job. Each station was issued one each of the masks, cartridges, aprons, package of rubber gloves, and goggles.

B. Linden called all numbers on the Emergency Response Directory to make sure they were correct. Dorris made corrections and copies were distributed to all staff in September.

Gregg Tripp, engineer and owner of Mesa Applied Technologies, LLC of Cortez, CO, visited our Complex on November 19 and 20. Mr. Tripp has been contracted to write our Spill Prevention Control and Countermeasure Plans for our stations. It will take 30 to 60 days for receipt of his draft plans.

7. Technical Assistance

NTR

8. Other

Stevens left for Memphis on April 23 to attend a two-day course regarding property officers training. His traveling companions were King and Carpenter.

In July, all Panther Swamp personnel took the IT Security Training and passed.

F. HABITAT MANAGEMENT

1. General

NTR

2. Wetlands

In March, staff spent two days opening drains at Stricklin's. Neighboring landowners at Tupelo Brake Duck Club also opened their drainages. Manzo and Durham spent time with the backhoe at the Deep Bayou structure removing stop logs from the 10 foot structure. Fishermen were joyous at the increase in water current at the structure. Manzo and Durham continued maintaining water flow at other drains, including the water control structure at the Tupelo Brake Duck Club throughout the month.

In April a large dam was removed from Indian Camp Drain that was holding water on several hundred acres of land, including neighboring property belonging to the Phillips. Stevens removed a dam from the Board Road that was impacting neighbor Brett Robinson's property also. Explosives were used at both locations. Stevens opened water control structures at Lower Twist during the week of May 4 and again on June 4.

Staff initiated boarding of impoundments in October, and continued placing boards in water control structures throughout November. On November 8, Durham and Manzo boarded up the Deep Bayou structure. This job was accomplished with the backhoe. While there, they also used the backhoe to unstop several beaver-stopped water control structures in the area and then boarded them for the winter.

Wetland areas remained wet with good waterfowl usage throughout the month of November and December. Tropical Storm Isidore and Hurricane Lili provided adequate moisture for the entire area. Ducks avoided the wet wooded hunting areas late in the month. Birds favored moist-soil and agricultural areas at Lower Twist.

3. Forests

During January, large maps were created by L. King and Dorris for Stevens and Manzo covering Panther Swamp and the Carter tract. Small maps were made of the waterfowl hunt area for Manzo.

In January, COE employees and contractors began replanting trees at Big Twist. COE staff forester Johnny Kaiser supervised the work. Considerable rutting damage was done to one stretch of the road by the group. COE contractors continued the replant of hardwood trees on Big Twist during the month of February. Rains and high waters delayed planting for a brief period.

In April, Dorris took a limited number of cruise plots on Panther Swamp refuge and worked up a timber estimate. This information was submitted to Tom Berchem in Realty for the county revenue sharing assessment.

Dorris in April sent Carnathan a list of logger McLean's payments in 2001 and the balance owed on the C-13 sale. Carnathan heard that McLean was back in business and would try to collect the \$3,005.20 owed to the Service. In September, Carnathan received the money from McLean and sent it to Dorris. Dorris forwarded the \$3,005.20 to Denver.

Stevens picked up three cases of Kinepak explosives and all accessories at Yazoo on May 3. These will be used for beaver dam removal later in summer. Durham opened beaver dams alongside Board Road. The John Deere back-hoe was used for the job.

Dorris checked the C-2 sale area on Panther Swamp, which was drying out nicely. The timber buyer will send the \$5,000 performance bond. Dorris sent the new special use permit to them, with logging to begin mid-July. A pre-entry conference was scheduled with the logger for July 8.

Dorris received a performance bond of \$5,000 and the signed special use permit from Phil Thomas on July 1. Dorris met with logger, Marilyn Monk and her crew on July 11 to discuss special conditions of the sale. The shearer ran for two days before the majority of logging equipment was moved in on July 15. The loader arrived on July 18. Stevens met with Paul Waldrop and logging contractors on July 18 and 19. Road construction plans were formulated at the meetings. It was difficult to keep roads in good condition without continuous grading, gravel additions and other maintenance. Rains plagued the logging operation initially, but several loads were hauled. The sawlogs went to Kitchens Brothers Manufacturing Company in Utica, the tie logs to U.S.Tie and Timber, LLC of Redwood and the pulpwood was hauled to International Paper at Redwood.

The decision was made to allow a haul road to be laid out through the woods to prevent too much traffic on the gravel road section that runs through the sale area. Two loads of gravel were purchased by the buyer and spread over the culverts at the 160-crossing. Durham and Manzo widened the 90-degree turn where the E-W Lower Twist Road turns north. The buyer furnished the small corrugated pipe that was inserted into the 3' diameter pipe to extend the road width by six feet. This made the turn safe for long trucks.

Dorris talked with Louisiana realtor Ron Wilkes concerning needed revenue sharing information for timber sales occurring from 1997 through 2002. Volumes and values were provided to J.King in July to be forwarded to Wilkes.

In July, Stevens removed beaver dams with explosives and kept several beaver-stopped pipes drained during the month. Dorris provided Stevens with one case of 1/3 lb. kinopak sticks to aid in blowing pipes. Dams were removed on deep Bayou, Cocklebur, Snake Hole, Cablestand, Wade Bayou, Indian Camp Drain and Board Road. Drainage through the fields at Stricklin's were opened daily during the month.

In July, Stevens met with the pipeline project biologist to assist him with the bald eagle survey at the proposed work site for Southern Natural Gas pipeline drilling. Dorris was contacted to evaluate timber and reforestation costs at the proposed work site. Stevens and Dorris later cruised timber at the ENSR/Southern Natural Gas work site near the Whittington Channel. Dorris tabulated the timber value for Stevens to use in issuing permits.

Durham graded the gravel from the Lower Twist parking area back to the sale area on July 15. The county graded the levee at least twice and spread gravel in several depressions. Stevens and Dorris examined log skidder damage at the logging site at Lower Twist on July 26. Dorris talked to Monk about the problem. Skidder drivers were changed and conditions improved.

Scale tickets were received weekly to allow for tracking volumes and prices paid. It appeared the C-2 sale would cut out what was initially thought. Logging was completed on slightly more than half of the sale area and approximately 160,000 to 180,000 board feet (Doyle) were removed through August (Figure 1). A few rains caused logging to stop for several days, but the operation steadily progressed. Mrs. Monk experienced a few breakdowns, but nothing major. The difficult job was keeping log trucks hauling. She managed to average two trucks running, but really needed three or four to boost production.



Fig. 1. Nathan Skipworth, bucking logs at the loading deck, is really letting the chips fly.

LD 08/02

In August, staff continued removing beaver water, checking to see if any dams had been rebuilt. Dams were removed, and several pipes were unplugged with grubbing hoes. The back-hoe was used to open dams and pipes on the Board Road, an area of constant trouble. After two years without any trapping by Danny Jansen, the beavers were back and almost as big a nuisance as they ever were.

Firewood permits were issued in August to Tim Higgins of Yazoo City and Pat Deckard of Vicksburg.

Rains and employee problems created some delays. Dorris monitored harvest most of the time; Stevens and King also visited the work site on occasion (Figure 2). Loggers continued their operations throughout the month of September.

Timber sale administration continued during September for the Compartment 2 sale. More than 300,000 board feet of saw timber and 6,000 tons of pulpwood were removed by the end of September. Rains came toward the end of the month as hurricane Isidore made its way through the area, dropping more than 6 inches in the sale area, which halted logging (Figure 3). If they would have had a few more days, the project would have been completed. By October, \$60,000 had gone to Denver, and Dorris faxed official receipts to Phil Thomas of Yazoo Forest Products.



Fig. 2. These two saw hands were just looking for some shade as things heated up in August.
LD 08/02



Fig. 3. The hurricane events slipped up on these loggers, making it difficult to get this loaded truck out of the woods. LD 09/02

Dorris was assisted by Woodson five days during the month of September cruising timber in Compartment 3, totalling 1,000 acres. Woodson assisted another three or four days in October and November as time allowed, to help finish the cruising of Compartment 3. Using the Inform III computer program, Dorris summarized the C-3 cruise data for Panther Swamp NWR, and began writing a forest habitat management prescription.

In October, Dorris learned that logger, Marilyn Monk went out of business. Hurricane Lili, on the tail of hurricane Isidore, put the final halt on any chance of finishing this year. Dorris met with Waldrop and Stevens to discuss the gravel road situation leading to the sale area. Waldrop ordered ten loads of gravel to be delivered to the Lower Twist area and used on the road from the levee to the woods. Stevens will take care of the road from the woods line up to the Corps property. The gravel will be delivered next year in advance to the kickoff of harvest activities. A letter was received from Yazoo Forest Products requesting an extension of contract time. The extension was granted due to wet weather conditions. Dorris assisted Monk's crew on October 3 to help move the loader, skidder and shearer to the parking area. It will remain there or be moved to the front parking area near the levee for pick up by financial services. All trash, tires and five-gallon oil containers were hauled away from the sale area by Waldrop.

Dorris met with Waldrop on October 18 to look at the C-2 sale area and remaining work needed for sale completion. To aid in Dan Twedt's proposal, Mr. Waldrop agreed to look at the reforestation areas older than 20 years on Yazoo refuge to see if a thinning operation could be implemented. Only one area had trees tall enough to be considered, but then available acreage for harvest was a problem.

In November loggers moved a skidder and a tree feller from the parking area at Lower Twist. The equipment was moved after a rain, and some damage was caused to the roads as they left. As of December, the loader was the only piece of equipment not removed from the 160 parking lot.

4. Croplands

In January and February, Stevens and co-op farmer Ragland visited winter wheat fields at Lower Twist. The wheat had been wet since it was planted in the fall and was not looking good. Mr. Ragland was trying to determine whether it was worth investing any more money in it or replanting some other crop. He had not made his plans for the spring planting as he was waiting to see what the 2002 farm bill would be. Co-op farmer Ragland began fertilizing winter wheat on March 21. Wheat had greened up and began to look better by the end of the month.

In April, winter wheat in Lower Twist fields continued to progress. Co-op farmer Ragland began preparing for next month's planting at Lower Twist. In May, co-op farmer Ragland picked up more than 300 bushels of Lemont rice seed at Jimmy Sanders Seed of Hollandale for the refuge. On May 25th Stevens arranged for Mr. Ragland to pick up an additional 85 bushels of Cocodrie rice seed at Sanders. The rice was aerially seeded in an attempt to get the rice planted before a predicted rain. Between 150-170 acres were seeded. A small amount of rainfall was recorded at the site but not enough for germination. Ragland and Stevens began watering refuge rice causing the rice to germinate. By the end of June a good stand of rice was obtained.

Co-op farmer Ragland planted soybeans and sunflowers for the refuge June 6-8. By the end of June a good stand of rice was also obtained. Soybeans, sunflowers and Egyptian wheat were germinated and were doing well despite a lack of sufficient rainfall.

Co-op farmer Ragland began and completed harvest of wheat during June. Yields were low due to water damage that occurred during the winter months. Several areas were left unharvested due to weed problems. The wheat stubble remained fallow throughout the rest of the year.

In July, co-op farmer Ragland began applying permanent water to the refuge rice during the second week of the month. One well stopped working, and one power unit broke down. Ragland had repairs completed for both units. Ragland sprayed refuge rice for control of sesbania and other weeds.

Co-op farmer Ragland planted 30 acres of Japanese millet at Open Ridge and Hot Water impoundments on August 13. Fertilizer was applied with the seed. By the end of August, a good stand was obtained at each planted site. It was anticipated that the grasses would begin producing seed by the end of September. Stevens and co-op farmer Ragland met at Lower Twist to discuss the next year's work. Mr. Ragland planned to plant 700-800 acres of winter wheat. Refuge rice, soybeans, sunflowers and sorghum did well this year. Weed problems occurred, but many of the weeds were desirable, from a duck's point of view.

In September, refuge rice had almost finished for the year. Most of it had already made seed. Rainfall from tropical storm Isidore stimulated some late seed production. In October, refuge rice continued to make seed. The warm and wet tropical fall stimulated production of late rice that matured before a freeze. Blackbirds arrived in the area and began to damage rice, milo and sunflowers. The roost of blackbirds in neighboring Yazoo City attracts and holds one to three million birds every year. It is impossible to not sustain some rice crop damage when the refuge is so close to such a large blackbird roost.

The soybean crop was too damp to harvest during the month of October. Yields were impacted by the continuous warm wet weather. Co-op farmer Ragland thought he would have to leave his crop in the field. That was the least of his worries; he also had 1000 acres of cotton left unharvested. In November, the soybean crop still remained too damp to harvest. Yields had already been impacted by the continuing wet weather. Some soybeans harvested in the area had 80% damage and were left in the field. Ragland's combined sample tested 86% bad. None were harvested; a substantial loss for Mr. Ragland on a crop of beans that would have produced 30-35 bushels per acre. These were the best soybeans on the refuge in ten years. The ducks approved of Mr. Ragland's loss.

Cooperative Farmer Ragland attempted to harvest some rice for seeding of next years crop and met with trouble as he stuck his combine. Ragland was able to get his combine unstuck after several attempts. A D-6 bulldozer and winch were required. The redwing black birds harvested the crop for him. Stevens placed boards in the rice field after Ragland's combine was removed in an attempt to flood the rice and prevent bird damage. Manzo repaired a hole in the rice pad levee with the backhoe so that the fields would hold water. Stevens placed additional boards in several other impoundments at Lower Twist.

In December, Ragland aerially applied wheat to several higher sites at Lower Twist. Germination was poor at best due to the extremely wet conditions.

All in all crop production was excellent for resident and migratory birds. Mr. Ragland's inability to harvest his 500+ acres of soybeans due to damage from moisture, the 200+ acres of rice and Japanese millet planted for the refuge, and the sunflowers and egyptian wheat provided for some outstanding waterfowl habitat and usage. Many visitors came to the west levee to witness the waterfowl at Lower Twist fields.

5. Grasslands

COE contractors sprayed the Whittington Channel levees during the month of May.

COE contractors bush-hogged the Whittington Channel levees during the month of July. A strip was left along the top of the levee un-cut because of gravel spread there by County personnel conducting road maintenance. The squabble between County and COE heats up. Hopefully the COE will take over this levee/road; they do a much better job of maintenance than the county.

COE contractors cut the west and east levees of the Whittington Channel during the month of November. Some damage was caused to the levees being mowed under such wet conditions. A total of over 30" of rain over the last few months is not good for tractor operations.

6. Other Habitats

NTR

7. Grazing

NTR

8. Haying

NTR

9. Fire Management

In August, Dorris emailed to Roger Boykin Complex organizational codes so we can eventually get into the system for fire data entry by computer.

In October, Dorris provided Mississippi Forestry Commission's Martha Moore with a list of the Complex's fire-fighting resources. She completes an annual report for the state of Mississippi showing potential, local assistance during wildland fire incidences.

Stevens and Manzo disced fire breaks behind the office in September.

10. Pest Control

NTR

11. Water Rights

NTR

12. Wilderness and Special Rights

NTR

13. WPA Easement Monitoring

NTR

14. Farmers Home Administration Lands

NTR

15. Private Lands

NTR

16. Other Easements

NTR

G. WILDLIFE

1. Wildlife Diversity

NTR

2. Endangered and/or Threatened Species

NTR

3. Waterfowl

Staff conducted the waterfowl census January 8. Waterfowl were counted on the Tribble Tract (approximately 10,000) and on Panther Swamp (approximately 21,000). Most open areas were iced over the morning of the count. All ducks on the Tribble Tract were observed on four old catfish ponds. Most ducks on Panther Swamp were observed at Lower Twist impoundments and in flood areas along the Whittington Channel. A follow up visit to Lower Twist on January 10 resulted in the counting of approximately 50,000 to 60,000 ducks. Most birds were observed in rice, sunflower and corn fields. Some mallard ducks (1500-2000) were observed in a winter wheat field. Stevens conducted another waterfowl survey January 23.

Waterfowl numbers remained around 50,000 to 60,000 until January 31. At that time a warm southerly breeze and 80 degree temperatures sent them north. With the end of the duck season on January 30 and the renewed flooding of the Yazoo and Sunflower rivers, the ducks were provided with a large non-hunted acreage. The safety of Lower Twist impoundments was no longer needed. Stevens observed 40,000 to 50,000 snow geese at Lower Twist January 28; numbers stayed between 5,000 to 10,000 for most of the week. Between 3,000 to 4,000 white-fronted geese were also observed at the site on that day.

In February, a large group of snow geese was observed on a neighboring corn field belonging to Brett Robinson. Between 5,000 to 10,000 snow geese, 4,000 to 5,000 ducks, and a number of white-fronted geese stayed at the spot for several weeks during the month. Mr. Robinson had leased the hole to a group of duck hunters for the past hunting season. Not one waterfowl was killed or even observed on the property by the hunters during the entire season.

Several ducks arrived during the week of November 6. A number of gadwall and mallards were observed at Lower Twist impoundments. Several hundred great egrets were also using these impoundments. There was enough water for all this year. Duck numbers remained good throughout the month of December. Usage areas changed dramatically near the end of the month. Duck hunters had poor success after Christmas. Many hunters called the office, remarking at the large number of ducks on Lower Twist, but complaining about the poor hunting success in the waterfowl area.

4. Marsh and Water Birds

In May, white ibis, cattle egrets, little blue herons and snowy egrets were observed around the bird rookery located near neighboring fish ponds belonging to Manley Washington.

White ibis, cattle egrets, little blue herons and snowy egrets were observed around the bird rookery located near neighboring fish ponds and around the refuge during the month of June.

A number of great egrets used the rice fields during the month of December. Large flocks of cormorants were observed both on and off refuge.

5. Shorebirds, Gulls, Terns and Allied Species

NTR

6. Raptors

NTR

7. Other Migratory Birds

In May, several hundred bobolinks were observed in Lower Twist wheat fields.

In August, 40-50 wood storks were observed on several occasions along the west and east levees. The largest group was seen at Hot Water and Open Ridge impoundment. During the first week of September, Stevens again observed 40-50 wood storks at Stricklin's impoundments.

8. Game Mammals

NTR

9. Marine Mammals

NTR

10. Other Resident Wildlife

NTR

11. Fisheries Resource

NTR

12. Wildlife Propagation and Stocking

NTR

13. Surplus Animal Disposal

NTR

14. Scientific Collections

NTR

15. Animal Control

NTR

16. Marking and Banding

NTR

17. Disease Prevention and Control

NTR

18. Other

NTR

H. PUBLIC USE

1. General

NTR

2. Outdoor Classrooms - Students

NTR

3. Outdoor Classrooms - Teachers

NTR

4. Interpretive Foot Trails

NTR

5. Interpretive Tour Routes

NTR

6. Interpretive Exhibits/Demonstrations

NTR

7. Other Interpretive Programs

On Friday August 2, Stevens took a display to the Wildlife Extravaganza in Jackson and set it up with the assistance of Chris Woodson from Morgan Brake NWR. Stevens and Woodson then worked the booth until 9:00 p.m. Manzo took down the display on Sunday after working there that afternoon with his wife.

Biologist David Linden gave a talk to the Yazoo Garden Club on September 25 at the request of Stevens. Laura King was originally scheduled to make the presentation but was out of town.

8. Hunting

Waterfowl season was open the entire month of January. Hunter turnout was low due to the lack of ducks in the hunting area. Hunters called from all over the state and the country hoping to find a place to hunt. Approximately 40 telephone inquiries were received on Monday, January 7; calls were received from Georgia, Alabama, Kentucky, Tennessee, South Carolina, Florida and Indiana. Duck numbers increased during the month, and hunter success improved somewhat toward the end of the month. Manzo and Durham provided law enforcement patrol during the hunts. The 2001-2002 waterfowl season ended on January 30 with the whimper it has been all year.

Archery deer season ended on January 31. Two deer were harvested, during the month long season.

Stevens handled quail hunting issues during February. Two Special Use Permits were issued for the month of February. The refuge also responded to several telephone calls requesting information on the extended snow goose season. The interested parties were forwarded to the appropriate state personnel.

Squirrel and rabbit season was open throughout the month of February. Manzo and Durham continued law enforcement patrol. The rabbit-with-dog season began on February 12. This was the first year that hunter orange was required for this hunt. Many hunters were observed without vests despite the brochure statements.

In March, Manzo and Durham placed signs on roads and ATV trails for the upcoming turkey season. The high water barricade at Lower Twist was removed; the barricade at the washed out 160 Crossing remained in place. The Youth Turkey Hunt took place the weekend of March 16-17. Participation was low because of bad weather. One bird was harvested during the hunt. The Limited Turkey Hunt ran throughout the month of April. Hunter turnout was low due to a number of reasons, with the primary reason being the flooding that occurred most of the month. Mosquitoes were also out in force during the month. Most hunters reported seeing and hearing "lots" of turkey. During the period a total of 106 hunters harvested five "gobblers". The Limited Turkey Hunt ended on Wednesday May 1. Participation was low during the last week of the season.

Stevens attended a hunt meeting at Yazoo Refuge on June 7, and later attended the hunt meeting at the MSDWFP offices in Jackson.

Telephone calls from hunters increased in numbers significantly during the month of August and during the first two weeks of September. Most calls were in reference to the limited muzzleloader and rifle hunts at Panther; a last minute effort to get on the drawing list. Several interested parties visited the office.

Stevens posted the logging area as "closed to all entry" and "no hunting" until loggers finish. This was done prior to the September 15 opening of the ATV trails and woods to scouting. Stevens visited the work area; loggers planned to be completed by squirrel season.

In November, Durham and Manzo spent several days preparing ATV trails and the parking areas prior to the first limited rifle hunt. All signs and posting were checked and corrected where needed. Stevens and staff prepared check station and materials. Check station signs were installed prior to the November 23-25 hunt. Stevens ran the deer check station at Gumbo Acres from November 23-25 during the limited rifle deer hunt and was assisted by Linden, King, Morganfield and Stafford. During the hunt 40 deer (24 bucks and 16 does) were harvested. Four deer scored in the 125 to 140 Boone and Crockett class (Figure 4). Several 2 1/2 year old and one 4 1/2 year old buck did not look like typical Panther Swamp deer (Figure 5); they were small in size and had small racks.



Fig.4

Waterfowl season opened on the refuge on November 29. Hunters had decent luck as there were a number of ducks on the refuge at the time.

Telephone calls from hunters continued during the month of November. Most calls were in reference to the limited muzzleloader and rifle hunts at Panther. They wanted to know if they had been selected for the hunts. Many calls concerning duck hunting also started coming in.

In December, most of the staff's time was spent dealing with two limited muzzleloader hunts, one limited rifle hunt, and the waterfowl season. Waterfowl season was open when a gun deer hunt was not open. Several nice deer were harvested during the deer hunts. Early season duck hunters had good luck.

During the first muzzleloader hunt, a total of 36 deer (19 bucks and 17 does) were harvested. In the second muzzleloader hunt, 43 deer (27 bucks and 16 does) were harvested. The last limited rifle hunt resulted in the harvest of 14 deer (12 bucks and 2 does).



Fig.5.

During the December waterfowl hunt, a total of 222 hunters harvested 434 ducks or 1.9 ducks per visit. A youth hunt season was held on December 28-29. The species breakdown is shown below.

Annual Duck Harvest

	Killed	Crippled
Mallard	228	29
Wood Duck	152	33
Gadwall	36	1
Wigeon	3	0
Teal	13	0
Ring-necked	2	0
Total	434	63

9. Fishing

The number of fishermen increased during the month of February and March. The number of fishermen again increased during the month of May and June. Most visitors fished at pipes and rock

weirs where there was a current. White bass, crappie, and gar were the primary target species. By the end of June most good fishing holes were flooded. The Deep Bayou Water-control Structure waters produced a number of good catches; fish were attracted to the current at this area.

10. Trapping

NTR

11. Wildlife Observation

NTR

12. Other Wildlife Oriented Recreation

NTR

13. Camping

NTR

14. Picnicing

NTR

15. Off-Road Vehicling

NTR

16. Other Non-Wildlife Oriented Recreation

NTR

17. Law Enforcement

Panther Swamp has 39,000 acres with over one hundred and fifty days of public hunting. Assistance from other refuges in the Complex as well as other units within the Fish and Wildlife Service is essential to provide the adequate law enforcement presence to run the hunts. This assistance includes LE and check station personnel. Without this valuable help, Law Enforcement personnel would have to help with check stations. Panther Swamp NWR has a staff of three; only two with law enforcement authority. Because of the number of hunting days and the limited, permit hunts, scheduling manpower is a nightmare.

Panther as well as the rest of the Complex experienced low numbers of hunters this year. We contribute most of this to the unusually warm temperatures throughout the hunting season. Having one of the Seasonal Law Enforcement Officers stationed on Panther was a tremendous help. With this added manpower and the cooperation between State Game and Fish officers Panther had better LE coverage this year.

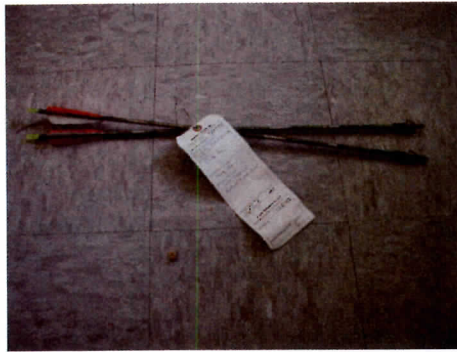


Fig. 6. Drug Pods on Arrows and Marijuana with Pipe taken from a hunter.

10/2002 CWC

There were 40 violations in 15 different categories.

VIOLATIONS ON PANTHER SWAMP NWR FOR 2002

VIOLATION	NUMBER ISSUED
Violation of U.S. Coast Guard Laws	6
Hunting without a Permit	6
Take MBTA*/With an Unplugged Shotgun	5
Vehicle Trespass	5
Fishing without a Permit	5
Possession of a Device for Employing Drugs on Arrows While Archery Hunting	2
Take MBTA*/With an Unsigned Fed. Duck Stamp	2
Fishing W/O a State License	2
Transporting an Un-cased Gun	1
Possession of a Controlled Substance	1
Possession of Alcohol	1
Hunt Small Game With Toxic Shot	1
Deer Hunting W/O Required Hunter Orange	1
Hunting During Closed Season	1
Possession of a Loaded Firearm on an ATV	1
TOTALS	40

*Migratory Bird Treaty Act

In January and February, Durham and Manzo continued to perform law enforcement work. Manzo

helped MDWFP officer Sammy Fisher on a lake detail one afternoon during January. In February, most work was spent patrolling rabbit/dog hunters alongside the Whittington Channel levees.

Durham and Manzo spent the first week of March investigating a theft of two of the refuges ATVs. Most of the time was spent with the Sharkey County Sheriff's office, Yazoo County Sheriff's office, Forest Service investigators, and MSDWFP law enforcement personnel. Durham and Manzo continued to investigate ATV thefts that occurred on the refuge throughout March. Manzo forwarded information to Carnathan on his return from Tallahassee. In April, Bobby Hodnett with MSDWFP informed us they had located a set of ATV ramps that belonged to the refuge. Durham went to their facility and saw the ramps, but was unable to enter the locked compound. A report from Patrol Captain Perry McMillan with the US Forest Service in Jackson was received by Manzo the week of March 24. No report had yet been received from the Sharkey County Sheriff's Office. In the end all equipment was recovered.

Manzo and Durham completed their Individual Health and Fitness Plans. A form was forwarded to other staff law enforcement officers and to DPL King.

D. Bradenburg left the crew trailer on May 4, departing for North Carolina. He was a welcome addition to the Panther Swamp compound and will be missed.

Manzo spent one day in Federal Court during the month of August.

Durham and Manzo prepared for the upcoming Labor Day dove hunt detail with Carnathan. Durham and Manzo worked the opening weekend dove hunts with Carnathan on September 1-2. Half of the day, September 3, was spent preparing paperwork for violations. Temporary law enforcement staff moved into the office trailer (crew quarters) during the last week of month.

The Panther staff met at Yazoo Refuge on October 2 to discuss LE work plans for upcoming year. Durham and Manzo spent the day of October 16 at Grenada for LE Firearms Qualifying. Manzo and Durham did LE paperwork during the week of October 21.

Manzo and Durham spent a large part of their time conducting law enforcement operations during the month of November. The limited rifle hunt was held November 23-25, and duck season opened November 29. They also spent a lot of time preparing trails, and placing "open" and "closed" signs on roads and trails. Manzo and Durham spent most of their time conducting law enforcement operations during the month of December - fifteen days of deer hunting and the rest during waterfowl season consumed most of their work hours.

18. Cooperating Associations

NTR

19. Concessions

NTR

I. EQUIPMENT AND FACILITIES

1. New Construction

In May and June, Durham and Manzo worked several days at Morgan Brake on refuge entrance signs.

In July, Durham was on duty at Hatchie Refuge assisting with a construction project. He and Haze Brown assisted at the refuge for two weeks.

Stevens met with Richard Cain of the COE in Yazoo City to plan upcoming Big Twist work. While there he returned three sets of barricade stands borrowed from the COE when the Mississippi and Yazoo Rivers flooded and refuge roads were closed.

2. Rehabilitation

Johnson Cooling and Heating came to the office to repair the office heater on January 7. They removed the fan and started a search for a replacement unit. Johnson Cooling and Heating completed repairs to the office heater the next week. The heater had been out of service for several weeks.

In January, Rick Fields visited the refuge twice to make repairs to Oaks' Chevrolet 4X4 winch. Manzo and Stevens spent a half day repairing the Deep Bayou water control structure. Recent flooding had created some leaks in the structure. Durham later assisted Manzo with further repairs at the site. Durham also worked on road and parking area needs. Manzo worked on safety needs for roads and bridges.

In February, Manzo graded the office/shop road with the 772CH John Deere grader. This was difficult to do at first because the hydraulics on the machine failed to work when it was first cranked. After calling Stribling-Clements Equipment in Greenwood, Manzo was still without an answer to this problem. However, when he cranked the machine again, the hydraulics began to work. Manzo did learn on his talk with the equipment company that they have been trying to reach us for recalls on 8 to 10 different items. One item is the replacement of the transmission on this piece of equipment. The 772CH John Deere Grader was later taken to Greenwood for recall work the week of February 18. Carpenter took care of the details for J. King.

Manzo put the Dodge 2500 in the shop for needed repairs, which included the power steering motor and front brakes, as well as other items. Both of these items were repaired last year. The front brake pads were repaired about this time last year. The rotors on the 2500 Dodge were repaired at Wilson Dodge in Jackson.

In March, the spray rig and tractor were taken back to Scott Tractor for additional work to the spray booms. The spray rig and tractor were moved from Scott Tractor after hydraulic lift additions to the spray rig were completed. The tractor was moved to Peaster Tractor for repairs of a hydraulic leak. While there the starter burned up, which required additional repairs.

Stevens forwarded herbicide price information to Frey at Hillside. The information was obtained from the COE office in Yazoo City.

In March, Manzo repaired the Honda Foreman, which had received some damage when stolen last month. Gear boxes were drained and fluids changed.

Durham assisted Billy Frey in getting the D-4 Cat dozer un-stuck at the Carter Tract in March. The D-5 was used to pull the smaller D-4 out. The low-boy was available to transport the D-5 to the spot. Durham repaired the three point hitch on the 2950 John Deere tractor and repaired the cutting deck on the riding mower.

In April, Durham picked up the low-boy at Yazoo Refuge and then proceeded to Stribling Equipment in Greenwood to pick up the 772CH John Deere Grader. The grader had been there for several weeks receiving recall work. The primary recall work was the replacement of the transmission.

In April, Stevens picked up Roundup and staff began spraying and repairing roads. The new spray rig worked fine. Stevens borrowed a water tanker from Cooperative Farmer Ragland for use in loading of the spray rig. All roads were sprayed by the end of the month, including roads on COE/Big Twist property. COE contractors bush-hogged roads on Big Twist during the week of April 15. It does not take them long to do the job when they come with five tractors and bush-hogs. COE contractors later graded the roads on Big Twist.

Staff began grading of refuge roads at Lower Twist during the week of April 15. The John Deere 2955 and bionic blade were used for the work. Roads were still too wet and soft for the heavier 772CH grader.

Durham made repairs to the cutting deck on the yard mower and later cut the office/shop grass. Manzo spent one day making repairs to and servicing the Alamo Bush-hog. A sway block for the 2950 John Deere tractor was ordered on April 19. The block was needed to keep the loaded spray rig from swaying and tearing up. Installation the next week eliminated the problem.

In May, Manzo spent one day making repairs to and servicing the Alamo Bush-hog. He later began cutting refuge roads and levees. Bush-hogging of roads and levees was completed on the west side during the week of May 4. Stevens obtained bids for herbicides for road weed control and forwarded them to Yazoo.

Durham picked up the Cat trackhoe and returned it to Panther for a half days work. The trackhoe was used to open a levee at Lower Twist. The next day he and Manzo took the machine to the Carter tract for Frey to use.

Durham made repairs to the office shop parking area and driveway. The backhoe and bionic blade were used for this job. Durham and Stevens repaired the portable/ATV spray rig for spraying at office on May 8. Manzo and Durham replaced the blades on the grader and also serviced the piece of equipment.

Staff continued to grade refuge roads. Roads at Stricklin's and Big Twist were graded again before flood waters cut off long stretches of the roads. Roads at Stricklin's were also bush-hogged before flood waters could get on them. The air conditioner on the grader began to malfunction on May 30.

Durham checked out a 3 inch pump and hoses for pump in case flooding worsens and pump is needed to keep office/shop levee pumped out. Hoses will be needed--prices were obtained for both an intake and an exhaust hose.

In June, Durham picked up the John Deere grader at Pester tractor after air conditioner repairs were made to the equipment. This grader has seen its fair share of warranty and other repairs.

Stevens and Durham installed three pipes in Lower Twist roads. One pipe with WCS was also installed. Another hole was cut in the main rice levee for future installation of a pipe. The backhoe, grader and tractor were used. The grader was also used to ditch along side roads to run water to rice paddies.

On June 7 Stevens borrowed a water tanker from Coop Farmer Ragland to use for spraying roads. Work was completed the next week. Durham cut grass around shop yard with the bush-hog, and later cut the rest of the lawn with the riding mower.

Stevens opened beaver-stopped pipes at Big Twist during the week of June 10 while he was assisting in road spraying on the property. The grubbing hoe was used for all pipes. Stevens opened beaver-stopped pipes again at Big Twist during the last week of the month. Pipes at Stricklin's, Deep Bayou and Board Road were also opened.

Durham graded Big Twist roads during the second week of July. He also began grading Lower Twist roads and was rained out for a while. He began grading Stricklin's roads on July 19. Durham completed grading Stricklin's roads the next week.

Manzo picked up a compressor, miter saw and other items for upcoming office repairs. Manzo and Durham picked up plywood, 1"x4" pine and other items at Gilbert Lumber for office repairs. Allen picked up other items for repairs. Staff, along with King and Hillside employees Allen and Hodge, began office repairs. Staff worked on the office roof for a week. Additional metal had to be ordered to complete the job. Staff spent a large portion of August working on refurbishing the exterior of the office. Additional metal for roof repairs was received from Majestic Metals in Jackson. Durham and Manzo picked up the materials the first week of the month. Staff also used cypress planks to redo the siding of the entire office. Temperatures were hot..

Manzo began cutting road shoulders and shop area at Gumbo Acres, and also bush-hogged ATV trails leading from office to begin prepping them for upcoming repairs. Manzo began bush-hogging at Stricklin's the next week. While working there the air conditioner on the 2950 quit. It was hauled to Peaster Tractor for estimates and repairs. The 2950 tractor remained in the shop for the entire month waiting on repairs to the air conditioner. Co-op farmer Ragland provided his tractor for road bush-hogging as replacement. All roads at Lower Twist were cut.

Staff sprayed the roads at Stricklin's and also completed spraying all the roads at Big Twist. Cooperative farmer Ragland allowed us to use one of his water tankers again for the three days we were spraying. Stevens cut grass around office as part of office repairs clean-up. Due to the rains, grass needed cutting weekly.

Stevens visited COE work areas at Big Twist. COE contractors began road construction work for new road additions for this year. COE contractors cut the east levee, and graded the east levee and all off-ramps.

Manzo picked up the AAMCO disc at Hillside during the week of August 19. He and Frey spent several hours welding on the disc to get it ready for operation. The disc and 4760 tractor will be used to begin work on ATV trail repairs.

In September, Durham changed oil and serviced his truck, 2500 White Dodge 4X4. Manzo and Durham cleaned the shop. The 2950 tractor remained in the shop for the first week of the month waiting on repairs to the air conditioner. The 2950 was picked up the next week and re-attached to the bush-hog. Staff cut levees and road shoulders at Stricklin's and Deep Bayou. The tractor was then moved to Lower Twist where staff started cutting the impoundment levees there. Durham spent half day welding and reinforcing the frame on the AAMCO disc on Tuesday. The disc frame has broken several times in the past and has a number of new stress cracks.

Staff completed caulking exterior of office during the first week of September, and completed painting the office exterior the next week. Durham then sprayed the cypress wood with oil stain.

Manzo began grading Lower Twist Roads. The 160 Woods Road loggers were using was also graded. In preparation for ATV trail repairs Durham disced Mink Slough Trail and start of Bombing Range Trail on Wednesday and Thursday September 4-5. Several areas of the trails were still too wet for work. The tractor was almost stuck in two holes on the trail.

Durham graded Stricklin's roads the week of the 16th in preparation for gravel to be delivered the next week. Stevens make arrangements with Hunter Sand and Gravel for delivery beginning the next Monday the 23rd. Delivery was canceled due to wet conditions at the pit and on the refuge.

Durham used the D-4 Cat dozer to blade the ATV trails at Gumbo. The Bombing Range, County Camp, and Mink Slough trails were worked. Durham spent most of two days on this job. This was in preparation for the upcoming hunting season. Many areas were still extremely wet and difficult to work.

COE contractors completed gravel delivery and road work at Big Twist the second week in the month of October. All roads were then graded.

Stevens discussed gravel delivery with Clarence Hunter of Hunter Sand and gravel. Delivery was scheduled for October 17-18, but was canceled due to wet conditions. Delivery was re-scheduled for the following week, but was again canceled due to wet conditions at the pit and at the refuge.

Durham patched two windows in office in order to stop moisture and mosquitoes from entering the office.

On November 6 Manzo and Corey Weed took the Red Blazer to Yazoo Refuge for repairs. Attempts at repair had already been made by Manzo.

In November, Durham used the backhoe to open drains at Hot Water WCS. Beavers continually plugged the structure, holding water at a level where it was impacting the road. Trapping is needed in this location.

In December, Manzo picked up bathroom repair supplies at ACE Hardware in Rolling Fork. The supplies will be initiated when the hunt slows down.

3. Major Maintenance

Major repairs were made to the office during the summer. Assisting the Panther staff in the tin roof installation (Figure 7) and cypress siding replacement were J. King of Yazoo and C. Allen and "Pops" Hodge of Hillside. After the two weeks of very hot work a contractor appeared in hindsight to be the cheapest and easiest solution.

In late July, staff began to prepare ATV trails located behind the office for major repairs. They were disced first in an attempt to get them dry enough for work. Manzo became stuck half way through the trails and the D-5 dozer was used to pull him out. In August, staff continued to try to dry the area for repairs. Stevens became stuck on the 4760 tractor and had to again be pulled out with the D-5 bulldozer. In September, staff finally got the trails disced with the tractor, bladed with the bulldozer for the entire length. Only a couple of areas were too wet for dump truck traffic needed for the repairs. At this time, Tropical Storm Isidore dumped 8.82 inches on the refuge, thus ending any thoughts of work on the trails for the year.



Fig.7.

4. Equipment Utilization and Replacement

Jay Smith visited the refuge January 9 to initiate work on property inventory; Stevens assisted. Stevens picked up a new Ford 150 4X4 at Yazoo refuge January 11. A radio for installation in the vehicle was obtained with the assistance of Jay Smith.

In February, Stevens took the new F150 truck to Leflore Communication in Greenwood for radio installation on Friday. Manzo took the 94 Ford truck to the shop for radio removal. Stevens had the old Ranger Radio from his old truck installed in the new truck so that he could have MSDF&P frequencies and the Yazoo Sheriff's Office frequency on the radio for emergency situations.

Frey picked up the D-4 Dozer on Thursday, March 7 and moved it to the Carter tract. The chassis cab was used to haul the dozer.

Stevens provided 1994 F150 Ford (the Pink Panther) to Frey for use until his new Dodge is out of shop.

Manzo and Durham attempted to repair the battery charger with no success. Bids were obtained from Delta Auto on a replacement. One was purchased.

Manzo and C. Allen of Hillside Refuge picked up a surplus military cargo van in Macon, GA. The two left early Monday April 15 and returned late Tuesday afternoon. The van was delivered to the Panther Swamp office, and later transferred to Yazoo Refuge.

Bids for a fuel pump were obtained and the pump purchased during the week of May 1. Manzo and Durham serviced all the refuge vehicles during the week of May 13. Stevens found two 2 X 8 oak planks at the local saw mill for use as runners on the low-boy trailer. Manzo and Durham picked up the planks and installed them on the low-boy. They then picked up the leased track-hoe at Turkey Point and took it to Leflore County for work there.

Yazoo staff delivered the 4760 John Deere tractor to Panther during the first week of September. Manzo and Durham changed oil, greased and serviced the piece of equipment. Air filters and fuel filters were also changed.

In November, Manzo ordered tires for the two Honda ATV's through Gateway Tire. An acquisition request was sent to Yazoo Headquarters. Other work was also performed on the ATV's during the week.

5. Communications Systems

NTR

6. Computer Systems

Stevens spent ½ day Thursday, March 7 on phone & computer with Larry Stoddard in the regional office updating his Lotus Notes. Stevens updated his Lotus Notes to 5.8 with a disc he received from Larry Stoddard at the RO. He then forwarded the CD to Woodsen at Hillside for updates there. Woodsen was to forward to Yazoo Refuge when he finished.

7. Energy Conservation

NTR

8. Other

In September, Stevens began preparing for the Panther Swamp/Carter Tract RPI update. On September 5, Stevens called K. Quintana in RO for King, and quizzed him about his upcoming visit, RPI lockout, and other problems arising from the RPI update. Stevens also printed up the rest of the RPI data that we had stored on disc. The Tribble properties were also printed for Carpenter; all had Lat/Long. info on print-outs; none was present at the RMIS site.

During the week of September 16th, Stevens and staff worked on RPI for upcoming visit by Ken Quintana and contracted engineers. We took photos and made diagrams; sprayed weeds around pipes and other places to visit so they were easier to view; cut remaining levees for better viewing; and got all paperwork ready. All staff assisted in this preparation.

September 24 was spent showing Quintana and contracted engineers the various properties on the refuge. Wilkins and Carpenter were also present for the initial meeting. Panther staff (Stevens, Manzo, and Durham) each took an engineer to various properties located on the refuge.

Stevens spent most of the day of October 3 with Atlanta engineer Daveed looking at property on Tribble Tract and Panther. Hurricane Lili finally broke the party up around 1:30 p.m. All important sites/property was visited. Mr. Daveed was fortunate enough to observe a cow that day; the first one he had ever seen in his life.

J. OTHER ITEMS

1. Cooperative Programs

In September, Stevens began preparing for the Panther Swamp/Carter Tract RPI update. On September 5, Stevens called K. Quintana in RO for King, and quizzed him about his upcoming visit, RPI lockout, and other problems arising from the RPI update. Stevens also printed up the rest of the RPI data that we had stored on disc. The Tribble properties were also printed for Carpenter; all had Lat/Long. info on print-outs; none was present at the RMIS site.

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2. Other Economic Uses

NTR

3. Items of Interest

NTR

4. Credits

Compilation and distribution by Yazoo staff.

HILLSIDE NATIONAL WILDLIFE REFUGE

Lexington, Mississippi

ANNUAL NARRATIVE REPORT

Calendar Year 2002

**U.S. Department of the Interior
Fish and Wildlife Service
National Wildlife Refuge System**

INTRODUCTION

Hillside National Wildlife Refuge (NWR) was established in 1975 and occupies 15,572 acres along the eastern edge of the Mississippi-Yazoo River Alluvial Plain in Holmes and Yazoo counties. Thirteen miles north of Yazoo City, the refuge is nestled between the loess hills and the U.S. Army Corps of Engineers (COE) Hillside Floodway Levee.

Hillside is a satellite refuge of the Yazoo NWR complex and is responsible for the management of Morgan Brake and Mathews Brake. The Hillside "subcomplex" staff includes a refuge manager, two range technicians, and a maintenance worker. All funding is directed through the Yazoo headquarters office.

Refuge lands were purchased fee title by the COE for their Hillside Floodway - Yazoo Basin Headwater Project, which transformed much of the land into a silt collection sump via a cutoff levee containing the altered channels of Black and Fannegusha creeks. The purpose of the project was to allow silt-laden waters to settle before reaching the Yazoo and Mississippi rivers, preventing costly dredging projects. Upon completion of the project, the land was transferred in 1975 from the Department of the Army to the Department of the Interior "...for the conservation, maintenance and management of wildlife, resources thereof, and its habitat thereon." The COE retained the right to manipulate water and any ditches they deemed fit. In addition, the COE kept the responsibility of maintaining the levee systems.

The dominant habitats are hardwood bottomlands with willow and cottonwood occurring in areas more affected by siltation problems. These habitats are interspersed with baldcypress and tupelo sloughs, or "brakes". Buttonbush, swamp privet, water elm and black willow grow in more shallow depressions. Other habitats include croplands, early successional reforested areas, sloughs, streams and aquiculture ponds. Before Service ownership, approximately 3,573 acres of land were cleared for crop production. More than half of this land has been reforested with future plans calling for a further reduction of cropland to a level adequate to meet waterfowl management objectives. Current lands include 6,673 acres of bottomland hardwoods, 5,010 acres of primarily black willow/cottonwood habitat, 1,323 acres of croplands, 1,069 acres of early successional reforested areas, 374 acres of sloughs and streams, 285 acres of borrow ponds and 838 acres of other lands, including administrative lands such as roads and levee rights-of-way.

The "Hillside Project" is just beyond half of its estimated 50 year life, but the silt collection capacity of the land is nearing the 50 year estimated capacity. The higher than projected siltation rate (approximately 0.5 feet per year), especially on the north end of the refuge, has resulted in tree replacement with less desirable, light-seeded species such as black willow and cottonwood. The heavy siltation is slowly but steadily moving southward with quality hardwood habitat disappearing in its wake. In addition, areas of heavy sedimentation that are repeatedly flushed are less productive for invertebrates, which serve as food for waterfowl. Many areas have undergone a transition from more favorable waterfowl plant foods to less desirable species such as alligator weed. To help offset these losses, nearly 1,000 acres have been replanted to bottomland hardwood species. Several hundred more acres were permitted to naturally regenerate. Also, twelve moist soil units comprising approximately 650 acres have been created.

Approximately 200 species of migratory birds can be seen on the refuge. An island of habitat in a sea of agriculture, the refuge provides important stop-over and nesting habitat for neotropical migratory birds as one of the larger forested tracts in the Mississippi Delta.

Golden eagles are occasionally seen, and bald eagles are regular winter visitors on the refuge.

The refuge is noted for large numbers of wintering waterfowl; numbers which have exceeded 125,000 birds. Mallards are the most numerous species with American widgeon, gadwall, northern shoveler, teal, scaup, ring-necked ducks and wood ducks being common. The wood duck and hooded merganser nest throughout the refuge.

Several species of marsh and wading birds can be found on the refuge, including white ibis, great, snowy and cattle egrets, and great blue, little blue, green-backed and yellow-crowned night herons. Common

shorebirds include killdeer, snipe, least and pectoral sandpipers, and greater and lesser yellowlegs. The more abundant raptors include the red-tailed hawk, northern harrier, American kestrel and Mississippi kite.

Larger mammals include white-tailed deer, feral hog, gray and fox squirrel, long-tailed weasel, swamp and eastern cottontail rabbit, fox, bobcat, coyote, beaver, nutria, mink, otter, skunk, opossum, muskrat and Eastern chipmunk.

A variety of shrews, voles, moles, rats and mice are present, as well as a number of amphibians and reptiles, including the American alligator. Various sloughs, streams, marsh areas and aquaculture ponds support a diversity of warm water fishes.

A. HIGHLIGHTS 1B. CLIMATIC CONDITIONS 2C. LAND ACQUISITION

- 1. Fee Title Nothing to Report
- 2. Easements Nothing to Report
- 3. Other Nothing to Report

D. PLANNING

- 1. Master Plan Nothing to Report
- 2. Management Plan Nothing to Report
- 3. Public Participation Nothing to Report
- 4. Compliance with Environmental Mandates Nothing to Report
- 5. Research and Investigations 2
- 6. Other Nothing to Report

E. ADMINISTRATION

- 1. Personnel 2
- 2. Youth Programs 2
- 3. Other Manpower Programs Nothing to Report
- 4. Volunteer Programs 2
- 5. Funding 3
- 6. Safety 3
- 7. Technical Assistance Nothing to Report
- 8. Other Items Nothing to Report

F. HABITAT MANAGEMENT

- 1. General 3
- 2. Wetlands 3
- 3. Forests 4
- 4. Croplands 4
- 5. Grasslands Nothing to Report
- 6. Other Habitats Nothing to Report
- 7. Grazing Nothing to Report
- 8. Haying Nothing to Report
- 9. Fire Management 5
- 10. Pest Control 5
- 11. Water Rights Nothing to Report
- 12. Wilderness and Special Areas Nothing to Report
- 13. WPA Easement Monitoring Nothing to Report
- 14. Farmers Home Administration Lands 5
- 15. Private Lands Nothing to Report
- 16. Other Easements Nothing to Report

G. WILDLIFE

1. Wildlife Diversity	Nothing to Report
2. Endangered and/or Threatened Species	5
3. Waterfowl	5
4. Marsh and Water Birds	Nothing to Report
5. Shorebirds, Gulls, Terns & Allied Species	Nothing to Report
6. Raptors	6
7. Other Migratory Birds	7
8. Game Mammals	7
9. Marine Mammals	Nothing to Report
10. Other Resident Wildlife	7
11. Fisheries Resources	7
12. Wildlife Propagation and Stocking	Nothing to Report
13. Surplus Animal Disposal	Nothing to Report
14. Scientific Collections	Nothing to Report
15. Animal Control	7
16. Marking and Banding	Nothing to Report
17. Disease Prevention and Control	Nothing to Report
18. Other	Nothing to Report

H. PUBLIC USE

1. General	Nothing to Report
2. Outdoor Classrooms - Students	Nothing to Report
3. Outdoor Classrooms - Teachers	Nothing to Report
4. Interpretive Foot Trails	8
5. Interpretive Tour Routes	Nothing to Report
6. Interpretive Exhibits/Demonstrations	8
7. Other Interpretive Programs	9
8. Hunting	9
9. Fishing	10
10. Trapping	10
11. Wildlife Observation	Nothing to Report
12. Other Wildlife Oriented Recreation	Nothing to Report
13. Camping	10
14. Picnicking	Nothing to Report
15. Off-Road Vehicling	10
16. Other Non-Wildlife Oriented Recreation	Nothing to Report
17. Law Enforcement	10
18. Cooperating Associations	Nothing to Report
19. Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction	11
2. Rehabilitation	Nothing to Report
3. Major Maintenance	12
4. Equipment Utilization and Replacement	12
5. Communications Systems	Nothing to Report
6. Computer Systems	Nothing to Report

7. Energy Conservation	Nothing to Report
8. Other	Nothing to Report

J. OTHER ITEMS

1. Cooperative Programs	Nothing to Report
2. Other Economic Uses	Nothing to Report
3. Items of Interest	Nothing to Report
4. Credits	13

A. HIGHLIGHTS

- The U.S. Forest Service and a group of students from the S.B. Marshall High School planted 10 pairs of pondberry (pair includes a male and female plant, totally 20) along the Alligator Slough Nature Trail on Hillside NWR.
- The Central Mississippi NWR Complex participated in the John Allen Fish Hatchery's Youth Fishing Rodeo on June 15th in Tupelo, MS.
- The Morgan Brake, Hillside, and Mathews Brake NWRs received a new Kubota M9000 tractor.
- Richard "Pops" Hodge was hired as a 1040 appointment starting August 12th.
- Hillside staff worked the Fish and Wildlife Service booth at the first MS Wildlife Federation Outdoorama in September, the Great Delta Bear Affair in October, and the Delta Expo in November.

B. CLIMATIC CONDITIONS

The area climate is a humid, warm-temperate, continental type characteristic of the southern United States. The average yearly rainfall is 52.48 inches with March being the wettest month averaging 5.62 inches. The average annual temperature is 64.5 degrees Fahrenheit. January is usually the coldest month while July is normally the hottest. The growing season averages 219 days with the average date of the first and last killing frost being October 30 and March 25, respectively.

Hillside received 42.59 inches of rainfall in FY2002. This is 9.89 inches lower than its average rainfall.

C. LAND ACQUISITION

1. Fee Title

NTR

2. Easements

NTR

3. Other

NTR

D. PLANNING

1. Master Plan

NTR

2. Management Plan

NTR

3. Public Participation

NTR

4. Compliance with Environmental Mandates

NTR

5. Research and Investigations

Rob Doster, Arkansas Cooperative Fish and Wildlife Research Unit, Fayetteville, Arkansas and a field crew of three other individuals conducted surveys of avian distribution and abundance in early-successional habitats on Hillside and Morgan Brake NWR's January 10 and 11. The research is examining wintering avian distribution and abundance in early-successional habitats throughout the Mississippi Alluvial Valley and is part of Rob Doster's PhD dissertation.

6. Other

NTR

E. ADMINISTRATION

1. Personnel

1. Travis Carpenter, Refuge Manager, GS-11, PFT, EOD
2. Chris Allen, Biological Science Technician, PFT, GS-07, EOD 6/14/92.
3. Billy Frey, Biological Science Technician, PFT, GS-07, EOD 3/28/99.
4. Unstaffed, Maintenance Worker, PFT, WG-08.

All activities on this station are supported by the Morgan Brake NWR staff who additionally have responsibility for Mathews Brake NWR. See staffing chart in Morgan Brake NWR narrative.

The maintenance position at Hillside NWR that is currently vacant and will not be filled. There is no fat to trim at these satellite refuges and a cut like this usually hits bone.

2. Youth Programs

With the loss of the maintenance position at Hillside NWR, the staff could not hire YCCs due to the lack of personnel to supervise them. A request for a YCC crew leader in FY 2003 was made to the Central MS NWR Complex.

3. Other Manpower Programs

NTR

4. Volunteer Programs

The volunteer hours were reported in the Morgan Brake narrative.

Volunteer Johnson worked 30 hours at the Thornton Road checkstation on Hillside NWR.

5. Funding

Carpenter updated the Maintenance Management System (MMS) and Refuge Operation Needs System (RONS) for Hillside NWR.

6. Safety

BT Frey attended heavy equipment training at St. Catherine Creek NWR on October 28th.

7. Technical Assistance

NTR

8. Other

NTR

F. HABITAT MANAGEMENT

1. General

Table 1. Hillside NWR Habitat Types

Type	Acreage	%
Bottomland Hardwood	6,673	42.9
Black Willow/Cottonwood	5,010	32.2
Croplands	1,323	8.5
Reforestation	1,069	6.9
Sloughs and Streams	374	2.4
Borrow Ponds	285	1.8
Other lands (incl. Admin.)	838	5.4
Total	15,572	100

2. Wetlands

Wetland management includes protection of bottomland hardwood forests and other natural wetland plant communities, installation and maintenance of water control structures and seasonal flooding of 12 field impoundments. In addition, the 400 acre field impoundment

All natural wetlands and impoundments are at full pool during January and remained so until March, providing ample habitat for waterfowl. Ideally, impoundments not slated for farming are drained

slowly beginning in March. This is done to promote the growth of desirable wetland plants for wintering waterfowl. Northward migrating shorebird numbers generally peak in April and take advantage of the receding water. Impoundments designated for cooperative farming are drained as soon as the majority of the waterfowl leave the area. Funding permitting, the refuge staff floods impoundments where possible in October while rains fill the rest in November and December. Staggering the water level in the remaining crops and moist soil areas ensure food will last through March.

3. Forests

On January 30, Dorris looked at reforestation areas off the A.P. slough road and some along the turkey point road. These trees look very good. Water was across the turkey point road in several areas.

In April, Dorris, assisted by Barrows one day and Carpenter another, took several plots on Hillside refuge. A timber estimate was generated and also submitted to Tom Berchem for use in determining the county revenue sharing assessment.

4. Croplands

Row crops beneficial to wildlife such as corn, soybeans, and milo are grown, as well as small grains such as winter wheat for migrating geese. The refuge receives a 25% share of a cooperative farmer's crop which is typically left in the field for wildlife.

Refuge croplands total 1,323 acres. The 983 acre Turkey Point Unit and 234 acre Shop Unit comprise the two main farming units on the refuge. Separated by a mile, both are located in the southern half of the refuge. The only other area farmed is the 106 acre Upchurch Unit on the extreme north end of the refuge. The refuge currently has two cooperative farmers on Hillside that share the farming duties. Carpenter and Frey discussed the upcoming farming season with cooperative farmers Nichols and White in February/March. Both farmers planted a combination of soybeans, corn, milo, and sunflowers during the 2002 farming year.

Cooperative farmer Nichols had an good to excellent crop of soybeans that 50 bushels an acre. He planted 60 acres of Japanese Millet for the refuge in impoundments 1, 5, and 6 on the Turkey Point Unit.

Cooperative farmer White had a poor corn crop which averaged approximately 75 bushels an acre and the milo was not much better with a harvest of 30 bushel an acre. The sunflowers for the dove hunt area did turn out an excellent crop. Cooperative farmer White did not have a lot of experience with farming which hindered his production.

5. Grasslands

NTR

6. Other Habitats

NTR

7. Grazing

NTR

8. Haying

NTR

9. Fire Management

See the Morgan, Brake narrative.

10. Pest Control

Several beaver dams were removed by refuge staff in the spring to protect the hardwood forest and allow agriculture fields to drain.

11. Water Rights

NTR

12. Wilderness and Special Rights

NTR

13. WPA Easement Monitoring

NTR

14. Farmers Home Administration Lands

Frey met with cooperative catfish farmer Ron Clark at the Dew Tract to see how they could end the farming agreement. Due to the hard times, Mr. Clark was receptive to changing from catfish farming to row crops.

15. Private Lands

NTR

16. Other Easements

NTR

G. WILDLIFE

1. Wildlife Diversity

NTR

2. Endangered and/or Threatened Species

An immature bald eagle was seen over the Turkey Point Unit on January 7 and a mature bald eagle was observed at the same location on January 12.

3. Waterfowl

The refuge is noted for large numbers of wintering waterfowl which have exceeded 125,000 birds

historically. Mallards are the most numerous species with American widgeon, gadwall, northern shoveler, northern pintail, green/blue winged teal, wood duck, scaup, and ring-necked ducks being common.

Geese have not been seen on the refuge since 1992 and have not visited in significant numbers.

The native wood duck and hooded meganser commonly nest throughout the refuge.

Carpenter, Frey, and Woodson conducted the annual Mid-Winter Waterfowl Survey on January 8th. Numbers were lower than average on the refuge during the count.

Winter Waterfowl Counts

Months	Waterfowl Numbers
November	15,850
December	9,450
January	11,500
February	2,325
TOTALS	39,125

The Mid-Winter Waterfowl Count was conducted on January 8 with the following results:

Mallard	2,100
Wood Duck	375
Gadwall	1,275
American Coot	230
Hooded Meganser	20
American Wigeon	60
Green-winged Teal	850
Northern Pintail	120
Northern Shoveler	60
TOTAL	5,320

4. Marsh and Water Birds

NTR

5. Shorebirds, Gulls, Terns and Allied Species

NTR

6. Raptors

A diversity of raptors can be found on the refuge during the fall migration. Raptors seen on the refuge include: red-tailed hawk, northern harrier, American kestrel, Cooper's hawk, sharp-shinned hawk, Mississippi kite, broad-winged hawk, and numerous species of owls.

7. Other Migratory Birds

Approximately 200 species of migratory birds utilize the refuge. Hillside is an important stopover and nesting area for neotropical migratory birds in the Lower Mississippi Delta. Painted and indigo buntings, kingbirds, dickcissels, prothonotary warblers, hooded warblers are just a few of the birds sighted on the refuge.

8. Game Mammals

Mammals that may be harvested during the various hunting seasons include white-tailed deer, feral hog, gray and fox squirrel, raccoon, opossum, swamp and eastern cottontail rabbit, fox, bobcat, coyote, beaver, nutria, mink, skunk, and muskrat.

White-tailed deer are the most popular mammal on the refuge for wildlife observation and hunting.

9. Marine Mammals

NTR

10. Other Resident Wildlife

Eastern wild turkeys and northern bobwhite quail are found throughout the refuge. Early reforested areas and disced fire lanes have improved the nesting and forage habitats for both species. The long-tailed weasels, river otter, armadillo, and eastern chipmunk are among the more notable mammals seen. Reptiles, including the American alligator, and amphibians can also be found throughout the refuge.

11. Fisheries Resource

Various sloughs, streams, marsh areas, and aquaculture ponds support a diversity of warm water fishes. Popular sport fish include largemouth bass, bream, catfish, and crappie. Also found are buffalo, carp, drum, gar, and bowfin.

12. Wildlife Propagation and Stocking

NTR

13. Surplus Animal Disposal

NTR

14. Scientific Collections

NTR

15. Animal Control

Plugged water control structures and ditches, destruction of levees, flooding of timber, and damage to refuge infrastructure are among the problems associated with a higher than desirable beaver population. Much time is spent in spring and early summer removing beaver dams with explosives, equipment, and shovels from clogged water control structures.

16. Marking and Banding

NTR

17. Disease Prevention and Control

NTR

18. Other

NTR

H. PUBLIC USE

1. General

NTR

2. Outdoor Classrooms - Students

NTR

3. Outdoor Classrooms - Teachers

NTR

4. Interpretive Foot Trails

The boardwalks on Alligator Slough Nature Trail received funding through the Maintenance Management System to be rehabilitated. The funding will be received in FY03.

5. Interpretive Tour Routes

NTR

6. Interpretive Exhibits/Demonstrations

Carpenter participated in the Private John Allen Fish Hatchery's Youth Fishing Rodeo on June 15th in Tupelo, MS. The event attracted several thousand people and also RD Hamilton and Senator Cochran attended.

Refuge staff worked the Service's booth at the Wildlife Extravaganza in Jackson on August 3rd.

Carpenter, Allen, Hodge, and Frey worked the Service's booth at the Delta Wildlife Expo in Greenville on November 2nd.

Carpenter and Frey participated in the Great Delta Bear Affair on October 19th in Rolling Fork, MS.

Staff from Morgan Brake NWR and Panther Swamp NWR constructed new entrance signs for the Complex. Two new signs were erected at Hillside NWR.

Carpenter gave a presentation on the Morgan Brake NWR sub-Complex to the Kiwanis Club in

Greenwood, MS on October 10th. Approximately 30 people were in attendance for the program.

Carpenter gave a presentation on the Morgan Brake NWR sub-Complex to a mens group at the First United Methodist Church. Approximately 15 people were in attendance for the program.

The Mississippi Department of Wildlife, Fisheries, and Parks used the Hillside firing range to teach the field portion of a hunter safety course to 25 school kids from Lexington Junior High School. Frey assisted with setting up targets for the children.

The U.S. Forest Service purchased and installed a new Pondberry sign on the Alligator Slough Nature Trail.

7. Other Interpretive Programs

NTR

8. Hunting

The following game mammals may be hunted: white-tailed deer, feral hog, gray and fox squirrels, raccoon, opossum, and swamp and eastern cottontail rabbits. Valid permit holders may take additional furbearers in season incidental to other refuge hunts with weapons legal for that hunt. These include fox, bobcat, coyote, beaver, nutria, mink, skunk, and muskrat. Below are partial visitation and harvest data taken from refuge staffed and self-check stations. Data are incomplete due to less than total compliance.

Table 2. Hunter use information from 2002 hunting season.

GAME	HUNTERS	DAYS
Deer	1,144	105
Duck	127	46
Squirrel	246	122
Rabbit	85	134
Dove	26	0
Feral Pig	0	0
Raccoon	3	76

Table 3. Deer harvest by Age Class and Sex during the 2002 Muzzleloader Hunt.

AGE	BUCKS	DOES
Yearling	1	5
1.5	4	6
2.5	18	9
3.5	11	0
4.5	0	0

5.5+	0	0
TOTALS	34	16

9. Fishing

Most fishing occurs in the borrow ponds along the north levee, at the Tipton Bayou COE water control structure, and in various sloughs adjacent to the south levee.

Popular sport fish include largemouth bass, bream, crappie, and catfish. The most active time for fishing on the refuge is April-October, with the hot summer months having little activity.

10. Trapping

Trapping is allowed by special use permit only, which ensures control and minimizes disturbances in heavily utilized waterfowl areas.

Two trappers were issued special use permits this year. See Morgan Brake narrative for trapping report.

11. Wildlife Observation

NTR

12. Other Wildlife Oriented Recreation

NTR

13. Camping

Camping is not allowed on the refuges.

14. Picnicing

NTR

15. Off-Road Vehicling

All-terrain vehicles (ATVs) are allowed on designated trails from October 1 through January 31 for hunting purposes only. No "joy riding" is permitted. Deer hunters are not allowed to take ATVs off trail to retrieve game.

16. Other Non-Wildlife Oriented Recreation

NTR

17. Law Enforcement

Preventive law enforcement continues to take up a great deal of the Refuge Officer's time. This type of law enforcement is necessary on Hillside due to the degree of hunting pressure along refuge boundaries. Irregular boundaries and the use of dogs for running deer adds to the problems. Almost every acre around Hillside is leased by hunting clubs. Mississippi has 123 hunting days for deer including 61 days for running deer with dogs. Dogs running deer and other game on the refuge is a

constant problem.

Hillside, Morgan Brake and Mathews Brake share a staff of three with two having law enforcement authority. That's a lot of territory to cover, especially during hunting season with the added burden of law enforcement and deer check stations.

The shooting range at Hillside was heavily utilized this year. All the officers of five local police departments qualify with firearms on six month intervals. The Holmes County Sheriffs Department, the Tri County Drug Task Force, and two Constables also utilize our range and instructor. Providing this service assists the local agencies and maintains a good interagency working relationship. The U.S. Fish & Wildlife Service's regulations and safety rules are enforced at all times on the range. None of the above agencies are allowed to qualify or practice without a USFWS qualified instructor present.

VIOLATIONS ON HILLSIDE NWR FOR 2002

There were 24 violations written in 9 different categories.

VIOLATION	NUMBER ISSUED
Fishing Without a Refuge Permit	12
Hunting in a Closed Area	3
Deer Hunting without the required hunter orange	2
Failure to Display ID	2
Fishing Without a License	1
Vehicle Trespass	1
Use of Artificial Light to take Deer	1
Hunting Big Game with the Aid of Bait	1
Take MBTA*/With an Unsigned State Duck Stamp	1
TOTAL	24

*Migratory Bird Treaty Act

18. Cooperating Associations

NTR

19. Concessions

NTR

I. EQUIPMENT AND FACILITIES

1. New Construction

In March, an Intra-Service Section 7, Categorical Exclusion and a Nationwide Permit #3 from the

Corps of Engineers were completed for the two bridge replacements on Hillside NWR. The Regional Office has spent the money that was obligated for the bridge replacements and is trying to find some more money for the project.

2. Rehabilitation

NTR

3. Major Maintenance

The staff spends a considerable amount of time repairing old, surplus equipment needed to maintain the refuges.

Hodge and Allen spent two days working on the blue goose-neck trailer and GMC truck. The lights had to be rewired on the truck and trailer. The trailer is safe to operate on the road now.

Hodge and Allen worked on the International truck tractor. The truck needs a lot of work but can be driven around the refuge.

4. Equipment Utilization and Replacement

In January, Billy Frey received a new 2002 Dodge extended cap 4x4.

In July, the paper work was completed for a new cabbed tractor for the Morgan Brake, Hillside, and Mathews Brake NWRs. It should be delivered within the next week or so. This will be the happiest bush-hogging staff in the Southeast Region (no worries about ground bees and ragweed).

5. Communications Systems

NTR

6. Computer Systems

NTR

7. Energy Conservation

NTR

8. Other

NTR

J. OTHER ITEMS

1. Cooperative Programs

NTR

2. Other Economic Uses

NTR

3. Items of Interest

NTR

4. Credits

Compilation and distribution by Hillside staff.

MORGAN BRAKE NATIONAL WILDLIFE REFUGE

TCHULA, MISSISSIPPI

ANNUAL NARRATIVE REPORT

Calendar Year 2002

**U.S. Department of the Interior
Fish and Wildlife Service
National Wildlife Refuge System**

INTRODUCTION

Morgan Brake National Wildlife Refuge (NWR) was established in 1977 and encompasses 7,381 acres in west-central Mississippi. It is situated on the extreme eastern edge of the Mississippi Yazoo River Alluvial Plain between U.S. Highway 49 and the adjacent loess hills in Holmes County. Just outside of the city of Tchula, the refuge is only three air miles north of Hillside NWR and ten miles south of Mathews Brake NWR.

The refuge is a satellite of the Yazoo NWR complex and is managed by the Hillside staff which also has responsibility for Mathews Brake NWR. The Hillside sub-complex staff includes a refuge manager, two range technicians, and a maintenance worker. All funding is directed through the Yazoo headquarters office.

The refuge was originally established to protect hardwood bottomlands "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." Land acquisition began in September 1977 with the purchase of 298 acres. Major hardwood bottomland acquisitions of 1,033 and 1,187 acres occurred in 1979 and 1987, respectively. Since 1987, acquisition goals were expanded to include a complex of habitat types, including moist-soil areas, croplands and a variety of open water sloughs and streams. In 1992, the adjacent 3,290 acre John Hancock tract and several smaller tracts were purchased. The acquisition of the 80 acre Boyd tract in 1996 brought the current total to 7,381 acres.

Habitat types include 3,134 acres of bottomland hardwoods interspersed with cypress and tupelo brakes, 1,621 acres of early successional reforested areas, 813 acres of former commercial catfish ponds, 536 acres of croplands, 677 acres of shrub swamp and marsh, 570 acres of forested uplands and 30 acres of administrative lands.

There are 55 former commercial catfish ponds, nine deep wells, a fish hatchery, shop and one former residence on the refuge that was converted into an office for the Hillside sub-complex. The ponds, which have excellent management potential for migratory birds, are mostly rectangular in shape and range in size from 0.6 to 26 acres. Most ponds have both inlet and drain pipes. Twenty ponds which comprise 275 acres, the hatchery, shop and residence, have been rented to farmers by the Service in the past. Four ponds totaling 88 acres are managed for public fishing. The remaining ponds are managed in a habitat mosaic which includes draining some at key times for migrating shorebirds, row-cropping for wintering waterfowl, managing for natural moist soil vegetation, leaving some with deep water for diving ducks, and letting some grow up in trees to provide wading bird rookery habitat. In recent years, active rookeries have been present in two of the abandoned catfish ponds.

The refuge is noted for large numbers of wintering waterfowl which have exceeded 100,000 ducks in recent years. Mallards, American widgeon, gadwall and teal are found mostly in rice fields, flooded timber and moist soil areas. Ring-necked ducks, scaup and northern shovelers are very common in the managed fish ponds where canvasbacks, redheads, ruddy ducks and hooded mergansers are also often present.

Approximately 200 species of migratory birds utilize the refuge. An island of habitat in a sea of agriculture, the refuge is an important stop-over and provides nesting habitat for many neotropical migratory songbirds.

Golden eagles are occasional visitors and bald eagles are regularly seen in winter.

Several species of marsh and wading birds may be found on the refuge, including white ibis, great, snowy and cattle egrets, and great blue, little blue, green-backed and black and yellow-crowned night herons. Common shorebirds include killdeer, snipe, least and pectoral sandpipers, and greater and lesser yellowlegs. The more abundant raptors include the red-tailed hawk, northern harrier,

American kestrel and Mississippi kite.

Larger mammals include white-tailed deer, feral hog, gray and fox squirrel, long-tailed weasel, swamp and eastern cottontail rabbit, fox, bobcat, coyote, beaver, nutria, mink, otter, skunk, opossum, muskrat and Eastern chipmunk.

A variety of shrews, voles, moles, rats, and mice can be seen, as well as a number of amphibians and reptiles, including the American alligator. Various sloughs, streams, marsh areas and aquiculture ponds support a diversity of warm water fishes.

A. HIGHLIGHTS 1B. CLIMATIC CONDITIONS 2C. LAND ACQUISITION

- 1. Fee Title Nothing to Report
- 2. Easements Nothing to Report
- 3. Other Nothing to Report

D. PLANNING

- 1. Master Plan Nothing to Report
- 2. Management Plan 2
- 3. Public Participation Nothing to Report
- 4. Compliance with Environmental Mandates Nothing to Report
- 5. Research and Investigations 2
- 6. Other Nothing to Report

E. ADMINISTRATION

- 1. Personnel 3
- 2. Youth Programs 4
- 3. Other Manpower Programs Nothing to Report
- 4. Volunteer Programs 4
- 5. Funding 5
- 6. Safety 5
- 7. Technical Assistance Nothing to Report
- 8. Other Items 6

F. HABITAT MANAGEMENT

- 1. General 6
- 2. Wetlands 7
- 3. Forests 7
- 4. Croplands 8
- 5. Grasslands Nothing to Report
- 6. Other Habitats Nothing to Report
- 7. Grazing Nothing to Report
- 8. Haying Nothing to Report
- 9. Fire Management 10
- 10. Pest Control 10
- 11. Water Rights Nothing to Report
- 12. Wilderness and Special Areas Nothing to Report
- 13. WPA Easement Monitoring Nothing to Report
- 14. Farmers Home Administration Lands Nothing to Report
- 15. Private Lands Nothing to Report
- 16. Other Easements Nothing to Report

G. WILDLIFE

1. Wildlife Diversity	11
2. Endangered and/or Threatened Species	11
3. Waterfowl	11
4. Marsh and Water Birds	12
5. Shorebirds, Gulls, Terns & Allied Species	12
6. Raptors	12
7. Other Migratory Birds	12
8. Game Mammals	13
9. Marine Mammals	Nothing to Report
10. Other Resident Wildlife	13
11. Fisheries Resources	13
12. Wildlife Propagation and Stocking	Nothing to Report
13. Surplus Animal Disposal	Nothing to Report
14. Scientific Collections	Nothing to Report
15. Animal Control	14
16. Marking and Banding	14
17. Disease Prevention and Control	Nothing to Report
18. Other	Nothing to Report

H. PUBLIC USE

1. General	15
2. Outdoor Classrooms - Students	Nothing to Report
3. Outdoor Classrooms - Teachers	Nothing to Report
4. Interpretive Foot Trails	Nothing to Report
5. Interpretive Tour Routes	Nothing to Report
6. Interpretive Exhibits/Demonstrations	15
7. Other Interpretive Programs	16
8. Hunting	16
9. Fishing	16
10. Trapping	17
11. Wildlife Observation	Nothing to Report
12. Other Wildlife Oriented Recreation	Nothing to Report
13. Camping	Nothing to Report
14. Picnicking	Nothing to Report
15. Off-Road Vehicling	17
16. Other Non-Wildlife Oriented Recreation	Nothing to Report
17. Law Enforcement	17
18. Cooperating Associations	Nothing to Report
19. Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction	18
2. Rehabilitation	19
3. Major Maintenance	19
4. Equipment Utilization and Replacement	20
5. Communications Systems	20
6. Computer Systems	Nothing to Report

7. Energy Conservation	Nothing to Report
8. Other	20

J. OTHER ITEMS

1. Cooperative Programs	Nothing to Report
2. Other Economic Uses	Nothing to Report
3. Items of Interest	Nothing to Report
4. Credits	21

A. HIGHLIGHTS

- PLB Carpenter and RM Woodson swapped positions in March (E-1).
- The Chicopa Creek Project was completed in May utilizing the Regional Equipment Rental Fund (F-3).
- U.S. Forest Service personnel and students from S.B. High School planted pondberry on the Hwy 49 Kiosk Trail. A sign was purchased and erected by the USFS and placed at the kiosk (H-6).
- Delta Wildlife donated native grass seeds and use of a drill to plant eight acres of quail and turkey habitat in May (G-10).
- A kiosk and sign were constructed for the Providence Ponds in June (I-2).
- A new six foot security fence was erected at the Morgan Brake NWR office (I-1).
- A new M9000 Kubota tractor was purchased for the Morgan Brake NWR sub-complex in August (I-4).
- The Providence Ponds were opened to fishing in August (H-9).
- A large diversity and numbers of shorebirds were documented at Morgan Brake NWR during August-September (G-5).
- A study was conducted by the University of Arkansas to estimate the turnover rates of fall migrating shorebirds in the Mississippi Alluvial Valley (D-5).
- RM Carpenter attended Refuge Management Training Academy from October 19th-November 8th (E-8).
- Carpenter gave several presentations to civic groups in Greenwood on the Morgan Brake NWR sub-complex (H-7).
- Seven power units were purchased for the Morgan Brake NWR sub-complex (I-4).
- A disabled hunting blind was donated by Mississippi Wildlife and placed on Morgan Brake NWR for the two week muzzleloader season (H-8).
- Carpenter was detailed to the Regional Office in December to work on the Central Mississippi NWR Complex's Real Property database (E-8).
- A Request for Engineering Services was submitted for the rehabilitation of the shop and office (I-2).
- RT Allen and RT Frey were switched to Biological Science Technicians due to the new reclassification of the Range Technicians duties as fire fighters (E-1).

B. CLIMATIC CONDITIONS

The area climate is a humid, warm-temperate, continental type characteristic of the southern United States. The average yearly rainfall is 52.48 inches with March being the wettest month averaging 5.62 inches. The average annual temperature is 64.5 degrees Fahrenheit. January is usually the coldest month while July is normally the hottest. The growing season averages 219 days with the average date of the first and last killing frost being October 30 and March 25, respectively.

Rainfall is recorded on nearby Hillside NWR and is considered to be representative of the climatic conditions on Morgan Brake NWR. See the Hillside NWR Annual Narrative Report for more information.

C. LAND ACQUISITION

1. Fee Title

NTR

2. Easements

NTR

3. Other

NTR

D. PLANNING

1. Master Plan

NTR

2. Management Plan

A considerable amount of time was spent with Resource Planner King working on the Comprehensive Conservation Plan (CCP) for Morgan Brake NWR.

3. Public Participation

NTR

4. Compliance with Environmental Mandates

NTR

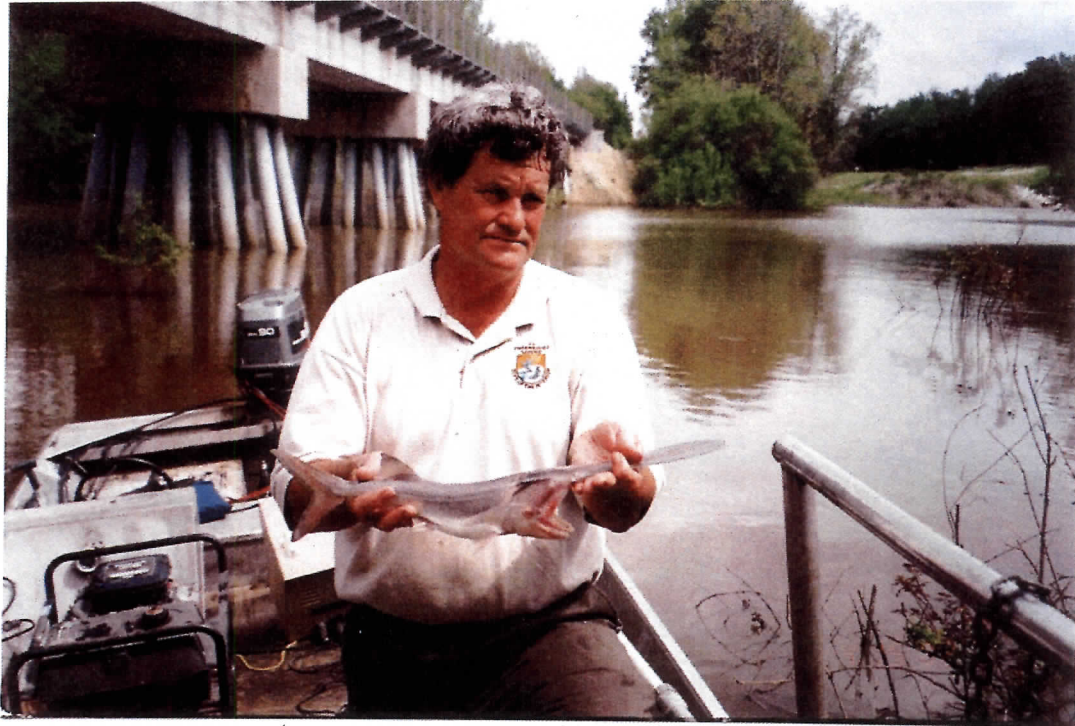
5. Research and Investigations

Sarah Lehnen, a graduate student with the Arkansas Cooperative Fish and Wildlife Research Unit, conducted a study to estimate the turnover rates of fall migrating shorebirds in the Mississippi Alluvial Valley (MAV) using two target species, the pectoral sandpiper (*Calidris melanotos*) and the least sandpiper (*Calidris minutilla*). Nineteen pectoral sandpipers were caught and fitted with radio transmitters, leg bands, and wing markers.

Ed Penny, a graduate student with Mississippi State University, completed his study on moist soil

plants and use by wintering waterfowl.

In April, the refuge assisted the Service's Jackson Field Office with collecting fish samples (smallmouth buffalo, carp, white crappie, and catfish) in Milestone Creek. Fisheries Biologist Forester from the Lafayette Field Office brought their shocking boat to collect the samples for the study.



In March, a professor from Memphis State and his graduate student sampled the south catfish ponds on Morgan Brake NWR for invertebrates. He plans on incorporating the Morgan Brake ponds and the Yazoo Cox ponds into his study on invertebrates and shorebird use.

6. Other

NTR

E. ADMINISTRATION

1. Personnel

1. Travis Carpenter, Refuge Manager, GS-11, PFT, EOD
2. Chris Allen, Biological Science Technician, PFT, GS-07, EOD 6/14/92.
3. Billy Frey, Biological Science Technician, PFT, GS-07, EOD 3/28/99.
4. Unstaffed, Maintenance Worker, PFT, WG-08.

EO Fields resigned his position on March 22 from Morgan Brake NWR. The position was not filled due to staffing problems and has created more work for the already under staffed sub-complex.

PLB Carpenter and RM Woodson swapped positions in March. Both individuals were looking to get into the other's job series and with a lot of paperwork from the field and regional offices, the swap became official in March. PLB Woodson will be stationed at the Morgan Brake NWR office.

Richard "Pops" Hodge was hired on a 1040 appointment in FY2002. He has proven to be a crucial part of the staff working and volunteering many hours to the refuges.

A change in the duties of Range Technicians caused Chris Allen and Billy Frey to be repositioned into the Biological Science Technician series. The new duties of a Range Technicians would be a wildland firefighter and covered under the early 6c retirement for firefighters and law enforcement.

2. Youth Programs

The YCC program is not feasible on the sub-complex unless a crew leader is hired to run the program. There were no YCCs in FY2002.

3. Other Manpower Programs

NTR

4. Volunteer Programs

Volunteer hours for calender year 2002 (below) were totaled and forward to Yazoo NWR.

Richard Hodge, 1026 hours worked, general maintenance and moist soil management

Shyrl Hood, 60 hours worked, beaver trapping

Bob Keesler, 60 hours worked, beaver trapping

TOTAL - 1146

Volunteer Hodge is a crucial part of the Morgan Brake NWR sub-complex especially since the loss of the maintenance position at Hillside NWR. Hodge spent most of his time mowing, spraying, discing, making repairs to equipment, and grading roads on the three refuges. He also pitched in with the renovation to the Panther Swamp NWR office and helped construct two kiosks and erect new refuge signs.

Volunteer beaver trapper Shyrl Hood and Bob Keesler donated a total of 120 hours removing beaver and nutria from Morgan Brake, Hillside, and Mathews Brake NWRs.

Richard Hodge was signed up as a refuge volunteer 2003.



5. Funding

The station's imprest fund was closed out after it was reduced from \$1,500 to \$100 with very limited use. This has caused problems for the station to purchase items that are needed in a timely manner. The request for the refuge manager to obtain purchase authority with the government credit card is being considered.

Maintenance Management System (MMS) and Refuge Operation and Needs System (RONS) priorities for FY 2002 were updated and forwarded to the Central MS NWR Complex.

6. Safety

Dorris served as the Complex Safety Officer for 2002. The Safety Committee was comprised of Frey, Manzo, Smith and Dorris.

Dorris talked with Brian Hardison on January 31 concerning Frey, Manzo, and Smith and their training needs to become the CDSOs for their respective stations. Hardison thought this was a good idea. Dorris would still serve as a safety coordinator to provide guidance. Each has to complete 30 hours of training via computer using our safety and occupational health CDs. This, however, does not take the place of the OSHA 600 course requirement that needs to be taken within 6 months after accepting the duties. Managers need approximately the same amount of time on the safety CD and all employees should sit down to 6 hours of training. Hardison said going to the Safety Home Page will show other needed safety programs and training.

In January, Safety Officer Dorris posted Asbestos Hazard warnings in the Morgan Brake office. Earth Consulting Group, Inc. conducted an asbestos material survey in October 2001 and found trace amounts in the tile floor covering and ceiling material. The amounts pose little threat. Areas were posted to warn of the hazard if the floor covering or ceiling material were ever removed. Harmful

exposure would most likely occur during removal and handling of the material.

During the Hillside monthly staff meeting in February, it was brought up that the refuge's refrigerant equipment is to be inventoried for Class 1 Ozone Depleting Substances and eventually phased out.

In May, Dorris made a request to Jim Poje in Engineering for \$6,600.00 to perform 6 yr. testing on 3 water wells on the Complex. By year's end, no money had been appropriated. Poje said possibly V.A. Sridhar's office in Denver might come up with some money. We are still on the list whenever money becomes available for this project. Actually, five wells need testing for organics/inorganics and metals across the complex.

Stafford requested PPE for chemical mixing in May. Dorris ordered half-mask respirators, filter cartridges, and aprons for the job. Each station was issued one each of the masks, cartridges, aprons, package of rubber gloves, and goggles.

B. Linden called all numbers on the Emergency Response Directory to make sure they were correct. Dorris made corrections and copies were distributed to all staff in September.

Gregg Tripp, engineer and owner of Mesa Applied Technologies, LLC of Cortez, CO, visited our Complex on November 19 and 20. Mr. Tripp has been contracted to write our Spill Prevention Control and Countermeasure Plans for our stations. It will take 30 to 60 days for receipt of his draft plans.

With assistance from Bill Starkel and Brian Hardison in December, Dorris discovered what courses are needed for a Spill Response Coordinator. Dorris was sent information on NCTC's Mobile, Alabama course "Oil and Chemical Spill Response" to be held January 27-31. Also, a Hazwoper course is needed. A free course is offered to USFWS employees by the EPA. Dorris forwarded all applicable information for these courses to Billy Frey, as he has agreed to take on this responsibility.

7. Technical Assistance

NTR

8. Other

Meetings attended by refuge staff during FY 2002.

- Real Property Workshop, Memphis, TN. April 23rd- 25.
- Real Property Detail, Atlanta, GA. December 8th- 13th.
- Grant Writing Course, NCTC, West VA. September 15th- 18th.
- Refuge Management Academy, NCTC, West VA.. October 19th- November 8th.
- Hunt Coordination Meeting, Jackson, MS, June 20th.
- LAPS Meeting, Jackson, MS. May 14th.
- Heavy Equipment Safety Training, Natchez, MS. October 28th.

F. HABITAT MANAGEMENT

1. General

Morgan Brake is extremely diverse in habitat considering the refuge is only 7,381 acres in size. The refuge has a combination of bottomland hardwood forest, cypress/tupelo brakes, shrub swamp/marsh, shallow and deep water impoundments, early successional reforested areas, forested

uplands, and croplands. The refuge supports a wide variety of plant and animal species as a result of this habitat diversity.

Table 1. Morgan Brake NWR Habitat Types

Type	Acreage	Percent
Bottomland Hardwood	3,134	42.5%
Early Success Reforested Areas	1,621	22.0%
Aquaculture Ponds	813	11.0%
Croplands	860	8.9%
Shrub Swamp, Marsh, Other Water	677	9.2%
Forested Uplands	570	7.7%
Other Lands (incl. Administrative)	30	0.4%
Total	7,705	100%

2. Wetlands

Wetland management includes protection of bottomland hardwood forests, installation and maintenance of water control structures, and seasonal flooding of field impoundments and abandoned catfish ponds.

All natural wetlands and impoundments are at full pool during January and remained so until March, providing ample habitat for waterfowl. Ideally, impoundments not slated for farming are drained slowly beginning in March. This is done to promote the growth of desirable wetland plants for wintering waterfowl. Northward migrating shorebird numbers generally peak in April and take advantage of the receding water. Impoundments designated for cooperative farming are drained as soon as the majority of the waterfowl leave the area. Funding permitting, the refuge staff floods impoundments where possible in October while rains fill the rest in November and December. Staggering the water level in the remaining crops and moist soil areas ensure food will last through March.

Frey and BT Allen placed stop logs in all water control structures and closed all other water controlling pipes to permit flooding of impoundments in early November.

Impoundments 7,8,9,35, and 50 were slowly drained in late June, July, and August for migrating shorebirds and wading birds. The impoundments were also used as study areas for the University of Arkansas and the University of Memphis.

The 272 acres of former catfish ponds located south of the office will be included in the water level management plan for migratory birds.

3. Forests

The Chicopa Creek Project was completed in May. A large track-hoe was rented by the refuge to excavate sediment along 0.5 miles of Chicopa Creek. The project's goal is to reestablish the original channel and return the flow of the water back into the creek. The water is currently being diverted

into the refuge and killing the bottomland hardwood forest with the amount of silt being deposited. EO Yelverton did an excellent and fast job with the excavator on Chicopa Creek.

4. Croplands

Row crops beneficial to wildlife such as corn, soybeans, and milo are grown, as well as small grains such as winter wheat for migrating geese. The refuge receives a 25% share of the farmers' crop which is typically left in the field for wildlife.

Lands identified for row cropping total 536 acres. Another 150 acres of the former commercial catfish ponds are often farmed in row crops as part of their planned rotation between moist soil management, shorebird management, and deep water habitat for diving ducks.

Cooperative farmers Michael and Rodney White had difficulty farming this year due to the wet soil conditions. The farmer only planted 160 out of 536 acres in milo due to the wet soil conditions on the refuge. The portions left for the refuge had experience damage from midges and feral pigs so there was not a lot left for waterfowl. After several meetings with the cooperative farmer, both parties decided it would be best if the Service did not renew the contract in FY 2003.

Frey and Carpenter secured donated rice seed from Jimmy Sanders Seed Company to plant 150 acres on the Blockaway Unit. Frey also farmed the 60 acres of red rice for the refuge. Due to his commitment to the refuge and extra effort in farming Blockaway, Frey received an "On the Spot Award".



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erative farming agreement between the Service and Bill Maloney to farm catfish on the refuge was dissolved. Catfish farming had fallen on hard times for the last several years and the Regional Office had encouraged the refuge to end the agreement when possible. Both parties decided amicably to dissolve the agreement.

Frey met with cooperative catfish farmer Ron Clark at the Dew Tract to see how they could end the farming agreement. Due to the hard times, Mr. Clark was receptive to changing from catfish farming to row crops.

Approximately 150 acres of winter wheat was planted on Blockaway as a cover crop and would also be utilized by resident wildlife.

5. Grasslands

NTR

6. Other Habitats

Approximately 8 acres were planted in Big Bluestem, Little Bluestem, Indian grass, lezpedeza, and partridge pea for turkey and quail. The seed and grain drill were donated by Delta Wildlife along with assistance from their biologist Gayden Polland. The majority of the planting was around the Lost 20 and Dixon ATV trail. The grasses that were planted will be utilized by turkey and quail as nesting and cover habitat and the lezpedeza/partridge pea will be a good food source.



7. Grazing

NTR

8. Haying

NTR

9. Fire Management

Carpenter completed the Pack Test in June to keep his Red Card Certification. Two videos were viewed for fire safety in wildland fires.

Staff from the Central Mississippi NWR Complex responded to a wildfire at Bon Secour NWR on July 5th-8th. The fire burned approximately 8 acres before the state forestry commission could get a perimeter set-up around the fire. Crews from St. Vincent and St. Marks NWR also participated in the Fourth of July Fire.

In August, Dorris emailed to Roger Boykin Complex organizational codes so we can eventually get into the system for fire data entry by computer.

In October, Dorris provided Mississippi Forestry Commission's Martha Moore with a list of the Complex's fire-fighting resources. She completes an annual report for the state of Mississippi showing potential, local assistance during wildland fire incidences.

Firelanes were disced around reforestation areas in (Travis will provide month).

10. Pest Control

Carpenter, Allen, and RO Brandenburg removed numerous beaver dams on Morgan Brake.

AF Dorris delivered 3 cases of binary explosives and 25 pull lighters to the Morgan Brake office. RT Allen continues to operate the feral hog trap on Morgan Brake NWR. Several hogs have been caught but the trapping is slowing down. Fewer hogs and sign have been seen on the refuge. Allen has been busy removing beaver dams on Morgan Brake and Hillside NWR.

In April, BT Allen and RO Brandenburg removed nine beaver dams on Morgan Brake.

11. Water Rights

NTR

12. Wilderness and Special Rights

NTR

13. WPA Easement Monitoring

NTR

14. Farmers Home Administration Lands

NTR

15. Private Lands

NTR

16. Other Easements

NTR

G. WILDLIFE

1. Wildlife Diversity

The refuge lies along the ecotone of the loess hills and the Mississippi/Yazoo River Alluvial Plain, providing a richer plant and animal diversity than either physiographic region could alone. Most of Mississippi indigenous plant and animal species found north of the gulf coast can be seen on Morgan Brake NWR.

2. Endangered and/or Threatened Species

Two adult bald eagles were observed over the Blockaway Unit during the month of January. The eagles were observed by RS Ingram, ARS Viker, PL Wilkins, DPL King, and Carpenter during their site visit of Morgan Brake NWR. The eagles were chasing waterfowl in the rice fields.

Several other eagles were spotted at Morgan Brake NWR by staff during the winter.

3. Waterfowl

The Mid-Winter Waterfowl Count was conducted on January 8 with the following results:

Mallard	18,000
Wood Duck	1,500
American Wigeon	3,500
Green-winged Teal	5,000
Lesser Scaup	1,200
Northern Pintail	10,000
Ring-necked Duck	1,200
Northern Shoveler	3,000
TOTAL	44,400

Table 2. Waterfowl survey results for winter months.

MONTHS	NUMBERS
November	25,250
December	34,430
January	44,400
February	2,287
TOTALS	106,367

4. Marsh and Water Birds

Several species of marsh and wading birds may be found on the refuge including white ibis, great, snowy, and cattle egrets, and great blue, little blue, green-backed, and black and yellow-crowned night herons. Rare visitors include wood storks, sandhill cranes, and roseate spoonbills.

Carpenter and WB Linden conducted a rookery survey on June 12th and 19th on Morgan Brake NWR. A new rookery was documented north of the Providence Ponds that contained cattle egrets, snowy egrets, and little blue herons.

5. Shorebirds, Gulls, Terns and Allied Species

Carpenter and Linden conducted a shorebird survey on Morgan Brake NWR on July 30th. Several hundred shorebirds were counted with Least Sandpipers being the most prominent species seen. Other species documented were Semipalmated sandpipers, pectoral sandpipers, spotted sandpipers, stilt sandpipers, lesser yellow-legs, and killdeer. A common tern or Forester's tern was also documented during the count. Several species of wading birds were utilizing the mud flats. The survey took place on ponds 3 and 7.

List of shorebirds and terns documented on the refuge:

- Killdeer
- Lesser Yellowlegs
- Spotted Sandpiper
- Least Sandpiper
- Pectoral Sandpiper
- Stilt Sandpiper
- Semipalmated sandpiper
- Western Sandpiper
- Wilson's Phalarope
- Dowitcher
- American Avocet
- Black-necked stilt
- Semipalmated plover
- Solitary Sandpiper
- Black tern
- Foresters tern

Woodson showed shorebird researchers from the Arkansas Cooperative Fish and Wildlife Research Unit around the shorebird impoundments on Morgan Brake NWR and set up living quarters for them. While showing them the impoundments, approximately 12 Roseate Spoonbills, two Wilson's Phalaropes, and hundreds of other shorebirds were observed.

6. Raptors

A diversity of raptors can be found on the refuge during the fall migration. Raptors seen on the refuge include: red-tailed hawk, northern harrier, American kestrel, Coopers hawk, sharp-shinned hawk, Mississippi kite, broad-winged hawk, and numerous species of owls.

7. Other Migratory Birds

Approximately 200 species of migratory birds utilize the refuge. Morgan Brake is an important stopover and nesting area for neotropical migratory birds in the Lower Mississippi Delta. Painted and indigo buntings, kingbirds, dickcissels, prothonotary warblers, hooded warblers are just a few of the birds sighted on the refuge.

8. Game Mammals

Mammals that may be harvested during the various hunting seasons include white-tailed deer, feral hog, gray and fox squirrel, raccoon, opossum, swamp and eastern cottontail rabbit, fox, bobcat, coyote, beaver, nutria, mink, skunk, and muskrat.

White-tailed deer are the most popular mammal on the refuge for wildlife observation and hunting.

9. Marine Mammals

NTR

10. Other Resident Wildlife

Eastern wild turkeys and northern bobwhite quail are found throughout the refuge. Early reforested areas and disked fire lanes have improved the nesting and forage habitats for both species. The long-tailed weasels, river otter, armadillo, and eastern chipmunk are among the more notable mammals seen. Reptiles, including the American alligator, and amphibians can also be found throughout the refuge.

11. Fisheries Resource

Various sloughs, streams, marsh areas, and aquaculture ponds support a diversity of warm water fishes. Popular sport fish include largemouth bass, bream, catfish, and crappie. Also found are buffalo, carp, drum, gar, and bowfin.



Forester, Fisheries Technician Cedric, and Carpenter shocked and relocated approximately 1,500 bluegill from pond 1 to pond 5 to reestablish the population. Pond 5 had an excellent largemouth bass population but had almost no bluegill. The combination of low oxygen and double-crested cormorants were believed to be the factors in eliminating the population. The pond has a filamentous algae problem which contributes to low oxygen during hot summer days and has little to no structure

for fish to hide from predators.

Forester and CS Loyd Inmon collected fish from Milestone Creek on Morgan Brake NWR for a contaminant study on April 15th and 16th. Species collected included smallmouth buffalo, carp, white crappie, and catfish. Frey and Carpenter assisted with the project.

12. Wildlife Propagation and Stocking

NTR

13. Surplus Animal Disposal

NTR

14. Scientific Collections

NTR

15. Animal Control

Plugged water control structures and ditches, destruction of levees, flooding of timber, and damage to refuge infrastructure are among the problems associated with a higher than desirable beaver population. Much time is spent in spring and early summer removing beaver dams with explosives, equipment, and shovels from clogged water control structures.

Carpenter, Allen, and RO Bradenburg removed 18 beaver dams with explosives in May.

Volunteer trapper Shyrl Hood and Bob Keesler trapped for ten days on the refuges during January, removing 20 beavers, 2 opossums, 5 raccoons, and 1 skunk. Mr. Hood has been a great help to the refuges and has said this would be his last year to volunteer. A party was given at the Morgan Brake NWR for his many years of volunteering. He will be missed.

Feral pigs became well established on the refuge in 1998. This non-native species adversely impacts the native plant and animal species found on the refuge. Without doubt, they deplete the hard mast available for wintering waterfowl and resident wildlife. The intense population reduction by the refuge staff since 1998 has had a great impact on the population thus the damage to the infrastructure has been reduced. Trapping is still conducted and approximately 30 feral pigs were removed in FY 2002.

16. Marking and Banding

Pre-baiting began in June at the South Hill and Middle Hill Ponds. Wheat seed was used but there was little to no use of the banding sites. No birds were banded from July- September.

17. Disease Prevention and Control

NTR

18. Other

NTR

H. PUBLIC USE

1. General

Morgan Brake's public use is derived mostly from hunting and fishing. Limited refuge facilities and staff limit the opportunities for most non-consumptive users. Located near U.S. Hwy 49 and within one hour of several larger towns, the refuge has significant environmental education and wildlife-oriented recreational potential.

2. Outdoor Classrooms - Students

NTR

3. Outdoor Classrooms - Teachers

NTR

4. Interpretive Foot Trails

NTR

5. Interpretive Tour Routes

NTR

6. Interpretive Exhibits/Demonstrations

Carpenter participated in the Private John Allen Fish Hatchery's Youth Fishing Rodeo on June 15th in Tupelo, MS. The event attracted several thousand people and also RD Hamilton and Senator Cochran attended.

Refuge staff worked the Service's booth at the Wildlife Extravaganza in Jackson on August 3rd.

Carpenter, Allen, Hodge, and Frey worked the Service's booth at the Delta Wildlife Expo in Greenville on November 2nd.

Carpenter and Frey participated in the Great Delta Bear Affair on October 19th in Rolling Fork, MS.

Staff from Morgan Brake NWR and Panther Swamp NWR constructed new entrance signs for the Complex. Two new signs were erected at Morgan Brake NWR.

A new sign was purchased and erected at the Providence Ponds. The sign was purchased with fee dollars.

The U.S. Forest Service purchased and installed a new Pondberry sign at the Hwy 49 Kiosk Trail.

7. Other Interpretive Programs

Carpenter gave presentations to the Greenwood Kiwanis Club and the Mens Prayer Breakfast group in October.

8. Hunting

The following game mammals may be hunted: white-tailed deer, feral hog, gray and fox squirrels, raccoon, opossum, and swamp and eastern cottontail rabbits. Valid permit holders may take additional furbearers in season incidental to other refuge hunts with weapons legal for that hunt. These include fox, bobcat, coyote, beaver, nutria, mink, skunk, and muskrat. Below are partial visitation and harvest data taken from refuge staffed and self-check stations. Data are incomplete due to less than total compliance.

Table 3. Hunter use information from 2002 hunting season.

GAME	HUNTERS	DAYS
Deer	362	105
Duck	94	46
Squirrel	94	122
Rabbit	160	134
Dove	0	0
Feral Pig	0	0
Raccoon	0	76

Table 4. Deer harvest by Age Class and Sex during the 2002 Muzzleloader Hunt.

AGE	BUCKS	DOES
Yearling	0	0
1.5	1	2
2.5	2	2
3.5	6	3
4.5	1	0
5.5+	0	0
TOTALS	10	7

9. Fishing

The Providence Ponds were opened to fishing by the public in August. The ponds were opened on weekends only until the end of October. Fishing reports from the public proved to be positive with many people catching their limits of bluegill, largemouth bass, and catfish. The main complaint about the fishing was the large amount of filamentous algae in the pond. The pond needs to be fertilized which would reduce the algae.

10. Trapping

Trapping is allowed by special use permit only, which ensures control and minimizes disturbances in heavily utilized waterfowl areas.

Two trappers were issued special use permits this year.

11. Wildlife Observation

NTR

12. Other Wildlife Oriented Recreation

NTR

13. Camping

NTR

14. Picnicking

NTR

15. Off-Road Vehicling

All-terrain vehicles (ATVs) are allowed on designated trails from October 1 through January 31 for hunting purposes only. No "joy riding" is permitted. Deer hunters are not allowed to take ATVs off trail to retrieve game.

16. Other Non-Wildlife Oriented Recreation

NTR

17. Law Enforcement

The hunting seasons on Morgan Brake coincide with those on Hillside. The muzzleloader hunt is the most popular of all the hunts and is also true for Hillside. Having two refuges to manage deer hunts simultaneously on is extremely difficult for a law enforcement staff of two.

The size of Morgan Brake has almost doubled in the last few years and is still increasing with new acquisitions. There are several in holdings within the acquisition boundary. Two of the in holdings are leased for private hunting and cause some problems. One joining land owner has started a commercial guided hunt business. He has built tower stands just across the Refuge line. These stands over look large grass fields on the Refuge. We continue to try to acquire several of the areas which would solve many of our problems.

VIOLATIONS ON MORGAN NWR FOR 2002

There was only 4 violation on Morgan Brake in 3 different categories.

VIOLATION	NUMBER ISSUED
Hunting During Closed Season	2
Vehicle Trespass	1
Hunting Without a State Hunting License	1
TOTALS	4

Collateral duty officers, Allen and Frey, along with Complex Park Rangers Bubber Carnathan and Corey Weed, conducted all of the law enforcement work on Morgan Brake, Hillside, and Mathews Brake NWRs.

The hunting seasons on Morgan Brake coincide with those on Hillside. The muzzleloader hunt is the most popular of all the hunts and is also true for Hillside. Having two refuges to manage deer hunts simultaneously on is extremely difficult for a staff of three, even with volunteer help which can not always be counted on.

Hunting from the many public roads that run through and around the refuge is a serious problem. The mechanical deer decoy has worked well to deter this activity and has proven to be a valuable asset for law enforcement on Morgan Brake.

18. Cooperating Associations

NTR

19. Concessions

NTR

I. EQUIPMENT AND FACILITIES

1. New Construction

In March, an Intra-Service Section 7 and a formal request to the Corps of Engineers were completed and sent to the Federal Highway Administration for the Turkey Point Bridge Project on Hillside NWR. The funding for this project was spent on other projects last year by the Regional Office.

Carpenter completed and sent an RES for the Morgan Brake office and shop to the Complex.

Allen and Volunteer Hodge constructed a new six panel kiosk at the Providence Ponds in August. The kiosk has illustrated panels of waterfowl, shorebirds, wading birds, and wetlands displayed. Both employees gave extra effort in several construction/rehabilitation projects on three refuges and were given "On the Spot Awards".



One of the new entrance gates was installed at the Providence Ponds. The gates are large and require the back-hoe and about four yards of concrete per side. The remaining gates will be installed next year.

2. Rehabilitation

In February, Clark Fence and Awning Company of Greenwood provided estimates for replacing 1,862 feet of chain-link fencing and installation of two 24 foot roll gates at the Morgan Brake office. One estimate was \$16,054.17 using 9 gauge chain-link wire and a second estimate was \$16,985.17 using 11 ½ gauge chain-link wire. An additional \$1,862 for the demolition of the existing fencing can be added to the estimate. The old fencing would remain on site after demolition. The current fencing is 9 gauge and would probably be an adequate size for the new fencing considering someone could cut through 11 ½ gauge just as easy as 9 gauge. The major improvement over the existing fencing is a fence post upgrade to steel pipes, which should increase the fence's durability.

Allen and Volunteer Hodge worked for two weeks at the Panther Swamp NWR rehabilitating the office in August.

3. Major Maintenance

Frey and Carpenter replaced the water pump on the John Deere front end loader.

The entrance into Blockaway (wooded section) from Providence Road was repaired by the staff. Several loads of gravel and sand were needed to patch the rutted road.

4. Equipment Utilization and Replacement

A new Kubota M9000 4 wheel drive tractor was purchased and delivered to the Morgan Brake NWR. This is the first cabbed mid-sized tractor for the sub-complex which will make task like mowing and discing easier.

A new 16 foot trailer with double axles was purchased with end of the year money.

Frey and Allen received a complete set of tools for their work trucks.

A new 300 gallon portable fuel tank was purchased for the refuges. The tank is needed to refuel equipment and power units in the field.

A new 100 gallon truck fuel tank was purchased for the GMC 2500. The tank is needed to refuel equipment and power units in the field.

Seven power units were purchased in FY2002.

5. Communications Systems

A 100' radio tower was erected at Morgan Brake NWR for the refuges radio system. Three new remotes were purchased for use in the offices.

Connections Plus installed a new phone system for the Morgan Brake office. The office consist of four staff which kept the one phone line busy on a regular basis. An additional line was added along with four new phones and voice mail for each staff.

6. Computer Systems

NTR

7. Energy Conservation

NTR

8. Other

Surplus furniture from North Mississippi NWR Complex was received by the Morgan Brake NWR for the office.

J. OTHER ITEMS

1. Cooperative Programs

NTR

2. Other Economic Uses

NTR

3. Items of Interest

NTR

4. Credits

Compilation and distribution by Morgan Brake staff.

MATHEWS BRAKE NATIONAL WILDLIFE REFUGE

Sidon, Mississippi

ANNUAL NARRATIVE REPORT

Calendar Year 2002

**U.S. Department of the Interior
Fish and Wildlife Service
National Wildlife Refuge System**

INTRODUCTION

Mathews Brake National Wildlife Refuge (NWR), established in 1980, encompasses 2,418 acres in west-central Mississippi. Nine miles south of Greenwood, MS and 10 miles north of Morgan Brake NWR, the refuge is situated along the eastern edge of the Mississippi/Yazoo River Alluvial Plain in Leflore and Holmes Counties. The refuge can be accessed by gravel roads between Highway 49 and Highway 7 near the community of Sidon.

The refuge is a satellite of the Yazoo NWR Complex and is managed by the Hillside NWR staff which also has responsibility for Morgan Brake NWR. The Hillside "Subcomplex" staff includes a Refuge Manager, two Biological Science Technicians, and an unfilled Maintenance Worker. All funding is directed through the Yazoo NWR office.

Land acquisition began under the authority of the Migratory Bird Conservation Act with the refuge established "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." The initial purchase, in September 1980, consisted of 803 acres. Additional major acquisitions of 960 and 651 acres in 1986 and 1989, respectively, brought the total to the current 2,418 acres.

The major natural feature of the refuge is Mathews Brake proper, a 1,810 acre oxbow lake. The shallow lake consists of baldcypress and water tupelo trees in the deeper portions with buttonbush and swamp privet thickets in more shallow water. Water levels fluctuate and create moist soil plants beneficial for waterfowl and other migratory birds.

Other habitat types include 422 acres of bottomland hardwood and 186 acres of early successional reforested areas. The refuge is completely surrounded by intensive crop production, particularly cotton. Farming operations on the refuge were phased out in 1991-92. Refuge staff began planting native hardwood seedlings on the previously farmed land, and by 1993 all reforestation efforts were complete.

The largest brake in Leflore County, Mathews Brake is an important waterfowl area, often wintering over 30,000 ducks annually. Mallards, American widgeon, gadwall, blue-winged teal, and northern pintail are the more common waterfowl species which winter on the area. The native wood duck and hooded merganser commonly nest throughout the refuge.

Bald eagles are frequent visitors. The more abundant raptors include the red-tailed hawk, northern harrier, American kestrel, and Mississippi kite.

The refuge is home to a large number of wading birds, including great, snowy, and cattle egrets and great blue, little blue, and green-backed herons.

Larger mammals include white-tailed deer, gray, flying, and fox squirrels, long-tailed weasel, swamp and eastern cottontail rabbits, fox, bobcat, coyote, beaver, nutria, mink, otter, skunk, opossum, muskrat, and eastern chipmunk.

A variety of shrews, voles, moles, rats, and mice can be seen, as well as a number of amphibians and reptiles, including the American alligator.

A. HIGHLIGHTS 1B. CLIMATIC CONDITIONS 1C. LAND ACQUISITION

- 1. Fee Title Nothing to Report
- 2. Easements Nothing to Report
- 3. Other 1

D. PLANNING

- 1. Master Plan Nothing to Report
- 2. Management Plan Nothing to Report
- 3. Public Participation Nothing to Report
- 4. Compliance with Environmental Mandates Nothing to Report
- 5. Research and Investigations Nothing to Report
- 6. Other Nothing to Report

E. ADMINISTRATION

- 1. Personnel 2
- 2. Youth Programs Nothing to Report
- 3. Other Manpower Programs Nothing to Report
- 4. Volunteer Programs 2
- 5. Funding 2
- 6. Safety Nothing to Report
- 7. Technical Assistance Nothing to Report
- 8. Other Items Nothing to Report

F. HABITAT MANAGEMENT

- 1. General 3
- 2. Wetlands 3
- 3. Forests 4
- 4. Croplands 4
- 5. Grasslands Nothing to Report
- 6. Other Habitats Nothing to Report
- 7. Grazing Nothing to Report
- 8. Haying Nothing to Report
- 9. Fire Management 4
- 10. Pest Control Nothing to Report
- 11. Water Rights Nothing to Report
- 12. Wilderness and Special Areas Nothing to Report
- 13. WPA Easement Monitoring Nothing to Report
- 14. Farmers Home Administration Lands 5
- 15. Private Lands Nothing to Report
- 16. Other Easements Nothing to Report

G. WILDLIFE

1. Wildlife Diversity	Nothing to Report
2. Endangered and/or Threatened Species	5
3. Waterfowl	5
4. Marsh and Water Birds	6
5. Shorebirds, Gulls, Terns & Allied Species	Nothing to Report
6. Raptors	Nothing to Report
7. Other Migratory Birds	6
8. Game Mammals	6
9. Marine Mammals	Nothing to Report
10. Other Resident Wildlife	6
11. Fisheries Resources	6
12. Wildlife Propagation and Stocking	Nothing to Report
13. Surplus Animal Disposal	Nothing to Report
14. Scientific Collections	Nothing to Report
15. Animal Control	Nothing to Report
16. Marking and Banding	Nothing to Report
17. Disease Prevention and Control	Nothing to Report
18. Other	Nothing to Report

H. PUBLIC USE

1. General	Nothing to Report
2. Outdoor Classrooms - Students	Nothing to Report
3. Outdoor Classrooms - Teachers	Nothing to Report
4. Interpretive Foot Trails	Nothing to Report
5. Interpretive Tour Routes	Nothing to Report
6. Interpretive Exhibits/Demonstrations	8
7. Other Interpretive Programs	Nothing to Report
8. Hunting	8
9. Fishing	8
10. Trapping	8
11. Wildlife Observation	Nothing to Report
12. Other Wildlife Oriented Recreation	Nothing to Report
13. Camping	Nothing to Report
14. Picnicking	Nothing to Report
15. Off-Road Vehicling	9
16. Other Non-Wildlife Oriented Recreation	Nothing to Report
17. Law Enforcement	9
18. Cooperating Associations	Nothing to Report
19. Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction	9
2. Rehabilitation	Nothing to Report
3. Major Maintenance	10
4. Equipment Utilization and Replacement	10
5. Communications Systems	Nothing to Report
6. Computer Systems	Nothing to Report

7. Energy Conservation	Nothing to Report
8. Other	10

J. OTHER ITEMS

1. Cooperative Programs	Nothing to Report
2. Other Economic Uses	Nothing to Report
3. Items of Interest	Nothing to Report
4. Credits	10

A. HIGHLIGHTS

- A three panel kiosk was constructed in July at the Caldwell Parking Lot (boat ramp) (I.1).
- The Caldwell Parking Lot was enlarged to accommodate the increase use from waterfowl hunters (I.2).
- A new information station was installed in the Pin Oak Parking Lot (I.3).
- A meeting with the Corps of Engineers and an adjacent landowner was held to discuss problems with siltation in the brake and a possible land swap (C.3, F.2).

B. CLIMATIC CONDITIONS

Rainfall is recorded on nearby Hillside NWR and is considered to be representative of the climatic conditions on Mathews Brake NWR.

C. LAND ACQUISITION

1. Fee Title

NTR

2. Easements

NTR

3. Other

The FWS is still pursuing a land swap at Mathews Brake NWR that would eliminate a 10 acre in-holding in the waterfowl sanctuary.

D. PLANNING

1. Master Plan

NTR

2. Management Plan

NTR

3. Public Participation

NTR

4. Compliance with Environmental Mandates

NTR

5. Research and Investigations

NTR

6. Other

NTR

E. ADMINISTRATION

1. Personnel

1. Travis Carpenter, Refuge Manager, GS-11, PFT, EOD
2. Chris Allen, Biological Science Technician, PFT, GS-07, EOD 6/14/92.
3. Billy Frey, Biological Science Technician, PFT, GS-07, EOD 3/28/99.
4. Unstaffed, Maintenance Worker, PFT, WG-08.

All activities on this station are supported by the Morgan Brake NWR staff who additionally have responsibility for Hillside NWR. The current workload and tremendous public use of Mathews Brake NWR easily justifies the need for this refuge's own staff. See Morgan Brake NWR's Annual Narrative Report for sub-complex personnel information.

2. Youth Programs

NTR

3. Other Manpower Programs

NTR

4. Volunteer Programs

Volunteer hours are recorded under the Morgan Brake NWR narrative. Volunteer Richard Hodge worked numerous hours at Mathews Brake NWR maintaining roads, parking lots, and mowing grass.

5. Funding

Station funding is directed through Central MS NWR Complex office in Hollandale.

6. Safety

NTR

7. Technical Assistance

NTR

8. Other

NTR

F. HABITAT MANAGEMENT

1. General

Table 1. Mathews Brake NWR Habitat Types

Type	Acreage	%
Cypress/Tupelo Oxbow Lake	1,810	74.9%
Bottomland Hardwoods	422	17.4%
Reforestation	186	7.7%
Total	2,418	100%

2. Wetlands

The water level in the Brake is controlled by maintaining selected beaver dams and removing others to permit water flow in from the south by way of Abiaca Creek. Water flowing into the Brake from the south passes through a four foot diameter pipe that was installed in 1997 on Egypt Plantation.

PL Wilkins, DPL King, RM Carpenter, and PR Carnathan met with the Corps of Engineers and an interested landowner at Egypt Plantation to discuss the siltation problem in Mathews Brake NWR. The Corps explained that a gravel operation was the main culprit behind the large amount of sediment coming into the brake and there was not much they could do about it. They agreed to help with the Mathews Brake Project which would allow water into the brake without the sediment. The Corps is working on a project to address the silt in Abiaca Creek and has volunteered to complete the Service's project. The Corps has agreed to Planning and Engineering Phase in FY2003 and the Construction Phase in FY2004. The project would consist of installing a new water control structure at Abiaca Creek and digging a new ditch to the brake. The Corps would be responsible for obtaining all permits for the project.



3. Forests

Smith and Dorris went to Mathews Brake on February 12 to look at the timber on the flooded ridges and to curtail beaver and nutria population problems.

4. Croplands

All the croplands have been reforested on Mathews Brake NWR.

5. Grasslands

NTR

6. Other Habitats

NTR

7. Grazing

NTR

8. Haying

NTR

9. Fire Management

In August, Dorris emailed to Roger Boykin Complex organizational codes so we can eventually get into the system for fire data entry by computer.

In October, Dorris provided Mississippi Forestry Commission's Martha Moore with a list of the Complex's fire-fighting resources. She completes an annual report for the state of Mississippi showing potential, local assistance during wildland fire incidences.

Firelanes were disked around reforestation areas in (Travis will provide month).

10. Pest Control

NTR

11. Water Rights

NTR

12. Wilderness and Special Rights

NTR

13. WPA Easement Monitoring

NTR

14. Farmers Home Administration Lands

During the regional office visit to the brake, recommendations were made to include the FmHA land adjacent to the brake into the Central MS NWR Complex. The tract is currently administered by North MS NWR Complex.

15. Private Lands

NTR

16. Other Easements

NTR

G. WILDLIFE

1. Wildlife Diversity

NTR

2. Endangered and/or Threatened Species

Bald eagles are frequent winter visitors to Mathews Brake NWR.

3. Waterfowl

Mallards are the most numerous over-wintering waterfowl with American widgeon, gadwall, northern shoveler, green and blue-winged teal, scaup, and ring-necked ducks also common.

The native wood duck and hooded merganser commonly nest throughout the refuge. Natural nest sites for wood ducks are supplemented by artificial nesting boxes.

Table 2. Winter Waterfowl Counts

Months	Waterfowl Numbers
November	11,000
December	14,600
January	20,700
February	2,025
Total	48,325

The Mid-Winter Waterfowl Count was conducted on January 7th with the following results:

Mallard	4250
Wood Duck	175
Gadwall	3500
Shoveler	300
Green-winged Teal	<u>500</u>
TOTAL	8,725

RM Carpenter and RO Frank Manzo conducted an aerial survey of Mathews Brake in December with approximately 12,000 ducks in the brake. Lots of hunters with their "Mojo" Mallards could be seen from the air, no count on the number of hunters was conducted.

4. Marsh and Water Birds

Several species of marsh and wading birds may be found on the refuge including great, snowy, and cattle egrets, and great blue, little blue, green-backed, and yellow-crowned night herons. Rare visitors can include wood storks, sandhill cranes, and roseate spoonbills.

5. Shorebirds, Gulls, Terns and Allied Species

NTR

6. Raptors

NTR

7. Other Migratory Birds

The refuge provides important stop-over and nesting habitat for several species of neotropical migratory birds. Prothonotary, northern parula, and yellow-throated warblers are just a few of the more common songbirds that can be observed during the spring and summer months.

8. Game Mammals

Mammals that may be harvested during the various hunting seasons include white-tailed deer, feral hog, gray and fox squirrel, raccoon, opossum, swamp and eastern cottontail rabbit, fox, bobcat, coyote, beaver, nutria, mink, skunk, and muskrat.

9. Marine Mammals

NTR

10. Other Resident Wildlife

River otter, armadillo, flying squirrel, and eastern chipmunk are among the more notable mammals seen. A variety of shrews, voles, moles, rats, and mice are present, as well as a number of amphibians and reptiles, including the American alligator.

11. Fisheries Resource

A rich fishery, Mathews Brake supports many popular sport fish such as largemouth bass, bream,

crappie, and catfish. Buffalo, carp, drum, gar, and bowfin are also present. A water level management plan needs to be developed to manage the brake for both the oak component and the fisheries resource.

A request to the Fisheries Office in Lafayette, Louisiana was made for assistance with sampling Mathews Brake to determine the population of several species in FY03.

12. Wildlife Propagation and Stocking

NTR

13. Surplus Animal Disposal

NTR

14. Scientific Collections

NTR

15. Animal Control

NTR

16. Marking and Banding

NTR

17. Disease Prevention and Control

NTR

18. Other

NTR

H. PUBLIC USE

1. General

NTR

2. Outdoor Classrooms - Students

NTR

3. Outdoor Classrooms - Teachers

NTR

4. Interpretive Foot Trails

NTR

5. Interpretive Tour Routes

NTR

6. Interpretive Exhibits/Demonstrations

Staff worked several Wildlife Expos and Extravaganzas during FY02 that were recorded in the Morgan Brake NWR narrative.

7. Other Interpretive Programs

NTR

8. Hunting

Table 3. Hunter use information from 2002 hunting season

GAME	HUNTERS	DAYS
Deer	154	120
Duck	481	60
Squirrel	9	134
Rabbit	0	134
Dove	0	0
Feral Pig	0	0
Raccoon	0	76

The first two weekends in January were designated as Youth Waterfowl Hunting at Mathews Brake NWR. This proved to be a big success with the hunters agreeing it should be done every year.

9. Fishing

Fishing accounts for the greatest portion of consumptive use on the refuge, although no accurate estimate is available on the number of anglers. Most fisherman pursued crappie, with bass and bream being popular. The most popular months to fish the brake is in early fall and spring when the weather is cool and the fish are still active.

10. Trapping

There is no trapping allowed on the refuge except by special-use permit.

11. Wildlife Observation

NTR

12. Other Wildlife Oriented Recreation

NTR

13. Camping

NTR

14. Picnicing

NTR

15. Off-Road Vehicling

No all-terrain vehicles(ATV) trails are established on the refuges and are not allowed to retrieve harvested deer.

16. Other Non-Wildlife Oriented Recreation

NTR

17. Law Enforcement

Violations On Mathews Brake NWR FOR 2002

There were 7 violations in 3 different categories.

VIOLATION	NUMBER ISSUED
Hunting without a Permit	4
Take MBTA*/While Possessing Toxic Shot	2
Transporting an Un-cased Firearms	1
TOTALS	7

*Migratory Bird Treaty Act

18. Cooperating Associations

NTR

19. Concessions

NTR

I. EQUIPMENT AND FACILITIES

1. New Construction

A new three-panel kiosk was constructed in the Caldwell Parking area in July. The kiosk has three illustrative panels on Mathews Brake NWR, the National Wildlife Refuge System, and a map of Mississippi NWR.

2. Rehabilitation

NTR

3. Major Maintenance

The parking area at the boat ramp on Caldwell Road was enlarged with a combination of clay gravel and crushed limestone. BT Allen and MW Hodge did the site prep work and Spencer Gravel Company delivered 15 loads of clay gravel. The enlargement was definitely needed for the high use during waterfowl season on the brake.

4. Equipment Utilization and Replacement

The paper work was completed for a new cabbed tractor for the Morgan Brake, Hillside, and Mathews Brake NWRs. It should be delivered within the next week or so. This will be the happiest bush-hogging staff in the Southeast Region(no worries about ground bees and ragweed).

5. Communications Systems

NTR

6. Computer Systems

NTR

7. Energy Conservation

NTR

8. Other

In February, Southern Custom Exhibits mailed Chris Woodson proofs of the Mathews Brake kiosk panels funded by the fee program. The proofs were quickly edited and mailed back.

J. OTHER ITEMS

1. Cooperative Programs

NTR

2. Other Economic Uses

NTR

3. Items of Interest

NTR

4. Credits

Compilation and distribution by Mathews staff.